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NEWS 1		Web Page URLs for STN Seminar Schedule - N. America
NEWS 2		"Ask CAS" for self-help around the clock
NEWS 3	JAN 17	Pre-1988 INPI data added to MARPAT
NEWS 4	FEB 21	STN AnaVist, Version 1.1, lets you share your STN AnaVist visualization results
NEWS 5	FEB 22	The IPC thesaurus added to additional patent databases on STN
NEWS 6	FEB 22	Updates in EPFULL; IPC 8 enhancements added
NEWS 7	FEB 27	New STN AnaVist pricing effective March 1, 2006
NEWS 8	MAR 03	Updates in PATDPA; addition of IPC 8 data without attributes
NEWS 9	MAR 22	EMBASE is now updated on a daily basis
NEWS 10	APR 03	New IPC 8 fields and IPC thesaurus added to PATDPAFULL
NEWS 11	APR 03	Bibliographic data updates resume; new IPC 8 fields and IPC thesaurus added in PCTFULL
NEWS 12	APR 04	STN AnaVist $500 visualization usage credit offered
NEWS 13	APR 12	LINSPEC, learning database for INSPEC, reloaded and enhanced
NEWS 14	APR 12	Improved structure highlighting in FQHIT and QHIT display in MARPAT
NEWS 15	APR 12	Derwent World Patents Index to be reloaded and enhanced during second quarter; strategies may be affected
NEWS 16	MAY 10	CA/CAplus enhanced with 1900-1906 U.S. patent records
NEWS 17	MAY 11	KOREAPAT updates resume
NEWS 18	MAY 19	Derwent World Patents Index to be reloaded and enhanced
NEWS 19	MAY 30	IPC 8 Rolled-up Core codes added to CA/CAplus and USPATFULL/USPAT2
NEWS 20	MAY 30	The F-Term thesaurus is now available in CA/CAplus
NEWS 21	JUN 02	The first reclassification of IPC codes now complete in INPADOC

NEWS EXPRESS JUNE 16 CURRENT WINDOWS VERSION IS V8.01b, CURRENT MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP), AND CURRENT DISCOVER FILE IS DATED 23 MAY 2006.

NEWS HOURS	STN Operating Hours Plus Help Desk Availability
NEWS LOGIN	Welcome Banner and News Items
NEWS IPC8	For general information regarding STN implementation of IPC 8
NEWS X25	X.25 communication option no longer available after June 2006

Enter NEWS followed by the item number or name to see news on that specific topic.

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FILE 'HOME' ENTERED AT 13:32:32 ON 19 JUN 2006

=> FIL STNGUIDE

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	0.21	0.21

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LAST RELOADED: Jun 16, 2006 (20060616/UP).

=> file reg

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FULL ESTIMATED COST	0.06	0.27

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STRUCTURE FILE UPDATES: 18 JUN 2006 HIGHEST RN 888212-64-4
DICTIONARY FILE UPDATES: 18 JUN 2006 HIGHEST RN 888212-64-4

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TSCA INFORMATION NOW CURRENT THROUGH January 6, 2006

Please note that search-term pricing does apply when
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****
*
* The CA roles and document type information have been removed from *
* the IDE default display format and the ED field has been added, *
* effective March 20, 2005. A new display format, IDERL, is now *
* available and contains the CA role and document type information. *
*
****

Structure search iteration limits have been increased. See HELP SLIMITS
for details.

REGISTRY includes numerically searchable data for experimental and
predicted properties as well as tags indicating availability of
experimental property data in the original document. For information
on property searching in REGISTRY, refer to:

http://www.cas.org/ONLINE/UG/regprops.html

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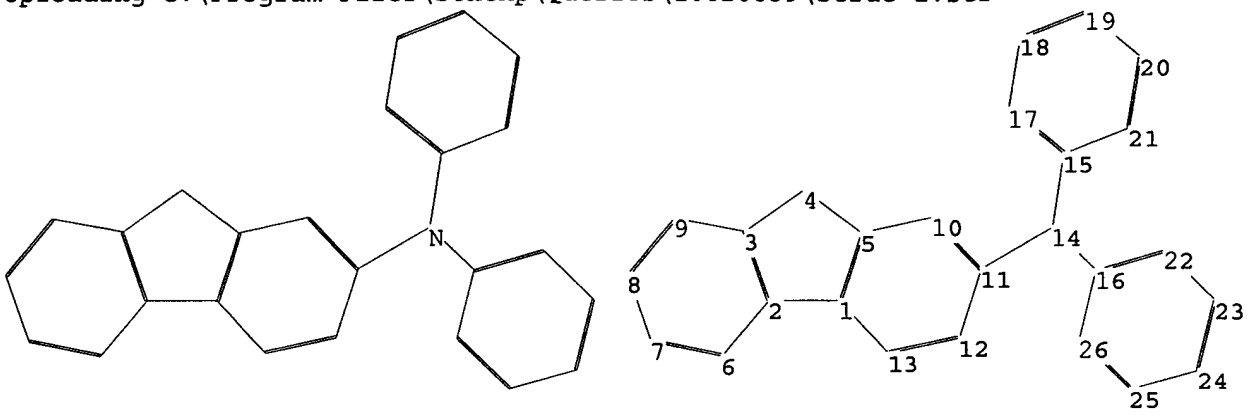
Uploading C:\Program Files\Stnexp\Queries\10620839\Struc 1.str



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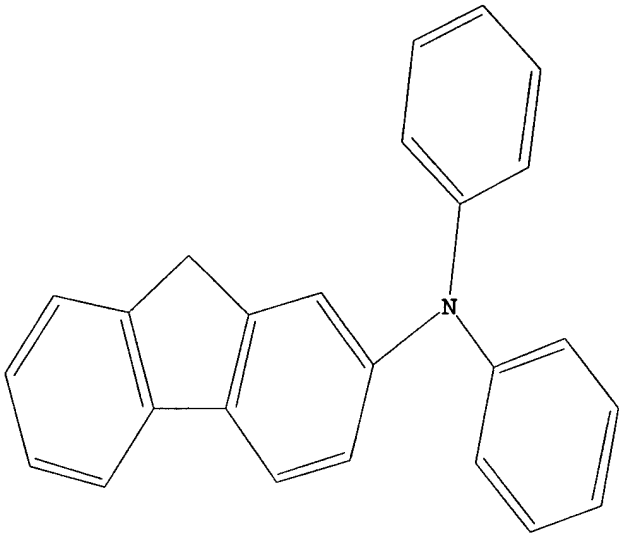
14
ring nodes :
1 2 3 4 5 6 7 8 9 10 11 12 13 15 16 17 18 19 20 21 22 23 24
25 26
chain bonds :
11-14 14-15 14-16
ring bonds :
1-2 1-5 1-13 2-3 2-6 3-4 3-9 4-5 5-10 6-7 7-8 8-9 10-11 11-12 12-13
15-17 15-21 16-22 16-26 17-18 18-19 19-20 20-21 22-23 23-24 24-25 25-26
exact/norm bonds :
1-2 3-4 4-5 11-14 14-15 14-16
normalized bonds :
1-5 1-13 2-3 2-6 3-9 5-10 6-7 7-8 8-9 10-11 11-12 12-13 15-17 15-21
16-22 16-26 17-18 18-19 19-20 20-21 22-23 23-24 24-25 25-26

Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom
11:Atom 12:Atom 13:Atom 14:CLASS 15:Atom 16:Atom 17:Atom 18:Atom 19:Atom
20:Atom 21:Atom 22:Atom 23:Atom 24:Atom 25:Atom 26:Atom

L1 STRUCTURE UPLOADED

=> d
L1 HAS NO ANSWERS
L1 STR



Structure attributes must be viewed using STN Express query preparation.

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=> l1
SAMPLE SEARCH INITIATED 13:33:53 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED -     3459 TO ITERATE

 57.8% PROCESSED     2000 ITERATIONS                                 50 ANSWERS
INCOMPLETE SEARCH (SYSTEM LIMIT EXCEEDED)
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS:  ONLINE  **COMPLETE**
                        BATCH   **COMPLETE**
PROJECTED ITERATIONS:        65653 TO    72707
PROJECTED ANSWERS:            1971 TO     3355

L2            50 SEA SSS SAM L1

=>
Uploading C:\Program Files\Stnexp\Queries\10620839\Struc 2.str
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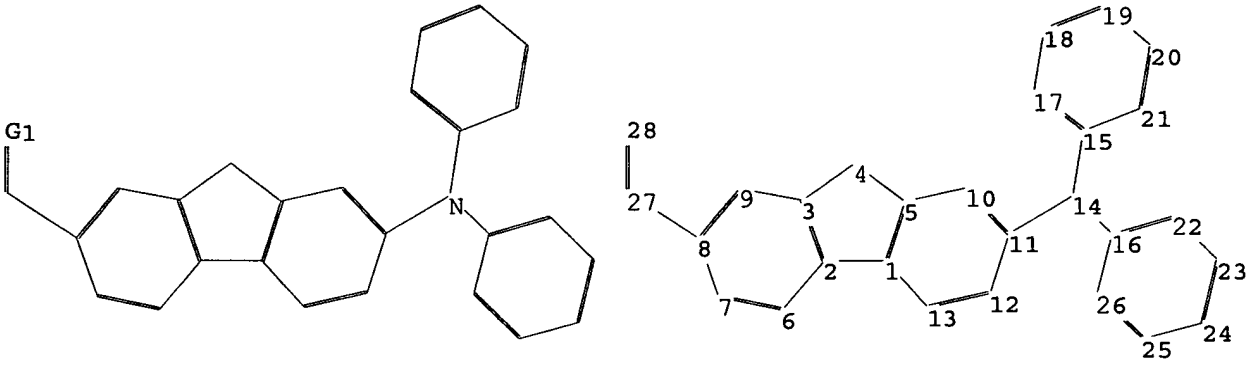


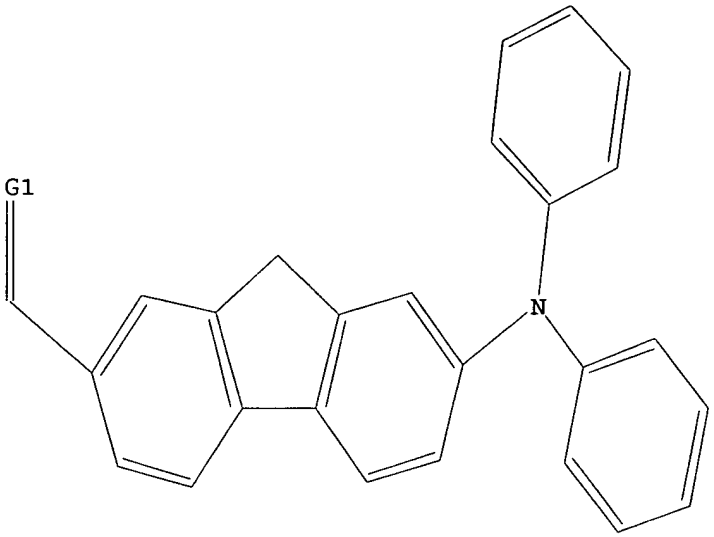
chain nodes :
14 27 28
ring nodes :
1 2 3 4 5 6 7 8 9 10 11 12 13 15 16 17 18 19 20 21 22 23 24
25 26
chain bonds :
8-27 11-14 14-15 14-16 27-28
ring bonds :
1-2 1-5 1-13 2-3 2-6 3-4 3-9 4-5 5-10 6-7 7-8 8-9 10-11 11-12 12-13
15-17 15-21 16-22 16-26 17-18 18-19 19-20 20-21 22-23 23-24 24-25 25-26
exact/norm bonds :
1-2 3-4 4-5 11-14 14-15 14-16 27-28
exact bonds :
8-27
normalized bonds :
1-5 1-13 2-3 2-6 3-9 5-10 6-7 7-8 8-9 10-11 11-12 12-13 15-17 15-21
16-22 16-26 17-18 18-19 19-20 20-21 22-23 23-24 24-25 25-26

G1:C,O,N

Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom
11:Atom 12:Atom 13:Atom 14:CLASS 15:Atom 16:Atom 17:Atom 18:Atom 19:Atom
20:Atom 21:Atom 22:Atom 23:Atom 24:Atom 25:Atom 26:Atom 27:CLASS 28:CLASS

L3 STRUCTURE UPLOADED

=> d
L3 HAS NO ANSWERS
L3 STR



G1 C,O,N

Structure attributes must be viewed using STN Express query preparation.

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=> l3
SAMPLE SEARCH INITIATED 13:35:30 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED -     2209 TO ITERATE

 90.5% PROCESSED     2000 ITERATIONS                                 1 ANSWERS
INCOMPLETE SEARCH (SYSTEM LIMIT EXCEEDED)
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS:  ONLINE  **COMPLETE**
                        BATCH   **COMPLETE**
PROJECTED ITERATIONS:        41361 TO    46999
PROJECTED ANSWERS:               1 TO       85

L4            1 SEA SSS SAM L3

=> l3 full
FULL SEARCH INITIATED 13:35:34 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED -    43292 TO ITERATE

100.0% PROCESSED    43292 ITERATIONS                                74 ANSWERS
SEARCH TIME: 00.00.01

L5            74 SEA SSS FUL L3

=> file medline caplus
COST IN U.S. DOLLARS                            SINCE FILE      TOTAL
                                                   ENTRY    SESSION
FULL ESTIMATED COST                                168.70     168.97

FILE 'MEDLINE' ENTERED AT 13:35:43 ON 19 JUN 2006

FILE 'CAPLUS' ENTERED AT 13:35:43 ON 19 JUN 2006
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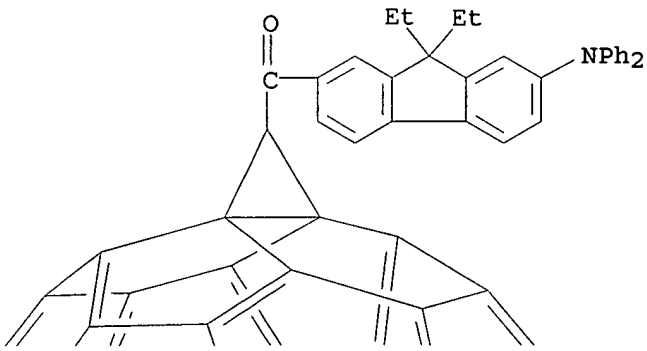
=> l5
L6 68 L5

=> d ibib abs hitstr 1-68

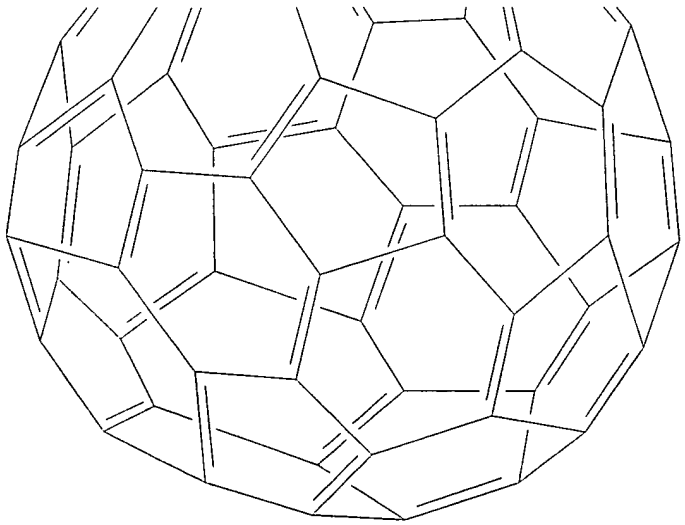
L6 ANSWER 1 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2006:290200 CAPLUS
TITLE: Synthesis and characterization of photoresponsive diphenylaminofluorene chromophore adducts of [60]fullerene
AUTHOR(S): Padmawar, Prashant A.; Canteenwala, Taizoon; Verma, Sarika; Tan, Loon-Seng; Chiang, Long Y.
CORPORATE SOURCE: Department of Chemistry, University of Massachusetts Lowell, Lowell, 01854, USA
SOURCE: Journal of Materials Chemistry (2006), 16(14), 1366-1378
CODEN: JMACEP; ISSN: 0959-9428
PUBLISHER: Royal Society of Chemistry
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A class of acceptor-keto-donor structures as hindered 9,9-di(3,5,5-trimethylhexyl)-2-diphenylaminofluoreno-methano[60]fullerene C60(>DPAF-C9) and the related bis-adducts C60(>DPAF-C9)2 and C60(>DPAF-C2)2 were synthesized. They are derivs. of multiphoton absorptive C60(>DPAF-C2) showing enhanced cross-sections of simultaneous two-photon absorption under laser excitation at 800 nm in nanosecond region. Mol. synthesis of these C60-DPAF conjugates involved the covalent attachment of a diphenylaminofluorene moiety to methano[60]fullerene via a keto linkage for increasing mol. acceptor-donor polarization of the chromophore in conjunction with the fullerene cage. Preparation of 7-(1,2-dihydro-1,2-methanofullerene[60]-61-carbonyl)-9,9-dialkyl-2-diphenylaminofluorene C60(>DPAF-Cn) involved cyclopropanation of C60 with a key synthon 7-α-bromoacetyl-9,9-dialkyl-2-diphenylaminofluorene. Synthesis of this synthon was achieved by a three-steps procedure starting from 2-bromofluorene via dialkylation at C9 of the fluorene ring, attachment of a diphenylamino group at C2 of dialkylfluorene, and Friedel-Craft acylation of the α-bromoacetyl group at C7 of diphenylaminofluorene. All C60-DPAF derivs. were fully characterized with the chemical structures confirmed by various spectroscopic analyses and validated by the single-crystal structural anal. data of C60(>DPAF-C2). Strong solvent-sensitive fluorescence quenching phenomena of C60(>DPAF-C2), C60(>DPAF-C9), and C60(>DPAF-C9)2 were noticed, showing no fluorescence band above 700 nm in more polar solvents, such as DMF, PhCN, and THF, while in less polar solvents (toluene, CHCl3, and CS2) a fullerenyl fluorescence band at 700-710 nm was observed It was attributed to the occurrence of electron transfer via the singlet excited state of the fullerene moiety 1C60*(>DPAF-Cn) in the former group of the solvents. On the contrary, energy transfer processes from DPAF-Cn moiety to the fullerene cage are favored in the latter group of the solvents.
IT **486998-58-7P**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(monoadduct; synthesis and structural characterization and photophys. properties of mono- and bis-adducts of diphenylaminofluorene with methanofullerene)

RN 486998-58-7 CAPLUS
CN Methanone, 3'H-cyclopropa[1,9][5,6]fulleren-C60-Ih-3'-yl[7-(diphenylamino)-9,9-diethyl-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)

PAGE 1-A

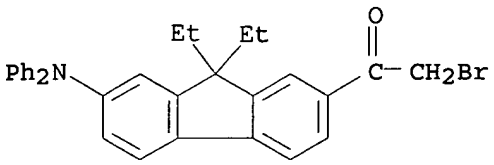


PAGE 2-A



IT **486998-57-6P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(reaction with C60 fullerene in presence of DBU)
RN 486998-57-6 CAPLUS
CN Ethanone, 2-bromo-1-[7-(diphenylamino)-9,9-diethyl-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 59 THERE ARE 59 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

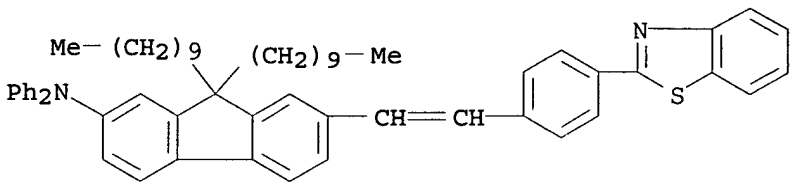
L6 ANSWER 2 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2006:161203 CAPLUS
DOCUMENT NUMBER: 144:243478
TITLE: Photosensitive polymeric material for worm optical data storage with two-photon fluorescent readout
INVENTOR(S): Belfield, Kevin D.
PATENT ASSIGNEE(S): University of Central Florida Research Foundation, Inc., USA
SOURCE: U.S., 33 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
US 7001708	B1	20060221	US 2002-306960		20021127
PRIORITY APPLN. INFO.:			US 2001-333972P	P	20011128
			US 2001-339283P	P	20011211

AB Image formation via photoinduced fluorescence changes in a polymeric medium with two-photon fluorescence readout of a multi-layer structure. Fluorophore-containing polymers, possessing one or more basic functional groups, underwent protonation in the presence of a photoinduced acid generator upon exposure to a broad-band UV light source or fast-pulsed red to near-IR laser irradiation Solution studies demonstrated formation of monoprotonated and diprotonated species upon irradiation, each resulting in distinctly different absorption and fluorescence properties. The fluorescence of the original, neutral, fluorophore was reduced upon monoprotonation, leading to a concomitant increase in fluorescence at longer wavelengths due to the monoprotonated form, the basis for multichannel data readout. Expts. in polymer films demonstrate the changes in fluorescence properties of the photosensitive polymer compns. and polymers can be employed for a high storage d., write-once read-many (WORM) data storage medium with two-photon fluorescence readout. Two-channel, two-photon fluorescence imaging provided both "pos." and "neg." image readout capability.

IT **745079-44-1P**
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(photosensitive polymeric material for WORM optical data storage)
RN 745079-44-1 CAPLUS
CN 9H-Fluoren-2-amine, 7-[2-[4-(2-benzothiazolyl)phenyl]ethenyl]-9,9-didecyl-

N,N-diphenyl- (9CI) (CA INDEX NAME)



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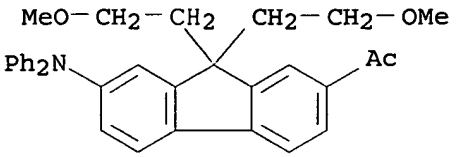
L6 ANSWER 3 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:1334086 CAPLUS
DOCUMENT NUMBER: 144:149941
TITLE: Photoinduced Processes in a Tricomponent Molecule Consisting of Diphenylaminofluorene-Dicyanoethylene-Methano[60]fullerene
AUTHOR(S): El-Khouly, Mohamed E.; Padmawar, Prashant; Araki, Yasuyuki; Verma, Sarika; Chiang, Long Y.; Ito, Osamu
CORPORATE SOURCE: Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Sendai, 980-8577, Japan
SOURCE: Journal of Physical Chemistry A (2006), 110(3), 884-891
CODEN: JPCAFH; ISSN: 1089-5639
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Photoinduced intramol. processes in a tricomponent mol. C60(>(CN)2-DPAF), consisting of an electron-accepting methano[60]fullerene moiety (C60>) covalently bound to an electron-donating diphenylaminofluorene (DPAF) unit via a bridging dicyanoethylenyl group [(CN)2], were investigated in comparison with (CN)2-DPAF. On the basis of the MO calcns., the lowest charge-separated state of C60(>(CN)2-DPAF) is suggested to be C60•-(>(CN)2-DPAF•+) with the neg. charge localized on the fullerene cage, while the upper state is C60(>(CN)2•--DPAF•+). The excited-state events of C60(>(CN)2-DPAF) were monitored by both time-resolved emission and nanosecond transient absorption techniques. In both nonpolar and polar solvents, the excited charge-transfer state decayed mainly through initial energy-transfer process to the C60 moiety yielding the corresponding 1C60*, from which charge separation took place leading to the formation of C60•-(>(CN)2-DPAF•+) in a fast rate and high efficiency. In addition, multistep charge separation from C60(>(CN)2•--DPAF•+) to C60•-(>(CN)2-DPAF•+) may be possible with the excitation of charge-transfer band. The lifetimes of C60•-(>(CN)2-DPAF•+) are longer than the previously reported methano[60]fullerene-diphenylaminofluorene C60(>(C:O)-DPAF) with the C60 and DPAF moieties linked by a methanoketo group. These findings suggest an important role of dicyanoethylenyl group as an electron mediating bridge in C60(>(CN)2-DPAF).

IT **874200-94-9**
RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
(condensation with malononitrile; photoinduced processes in a (diphenylamino)fluorene-dicyanoethylene-methano[60]fullerene triad)
RN 874200-94-9 CAPLUS
CN Ethanone, 1-[7-(diphenylamino)-9,9-bis(2-methoxyethyl)-9H-fluoren-2-yl]-(9CI) (CA INDEX NAME)



IT **649724-49-2**
RL: RCT (Reactant); RACT (Reactant or reagent)
(condensation with malononitrile; photoinduced processes in a (diphenylamino)fluorene-dicyanoethylene-methano[60]fullerene triad)
RN 649724-49-2 CAPLUS
CN Methanone, 3'H-cyclopropa[1,9][5,6]fulleren-C60-Ih-3'-yl[7-(diphenylamino)-9,9-bis(2-methoxyethyl)-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)

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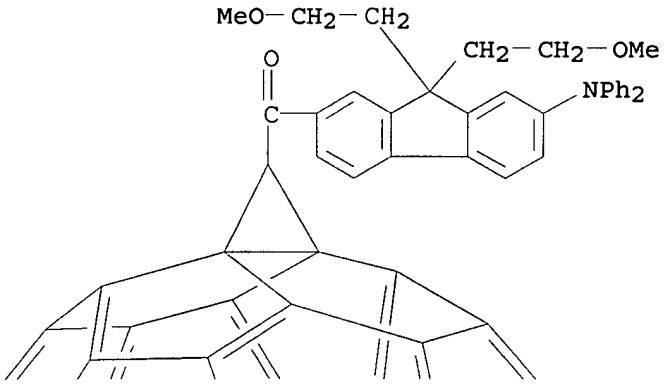

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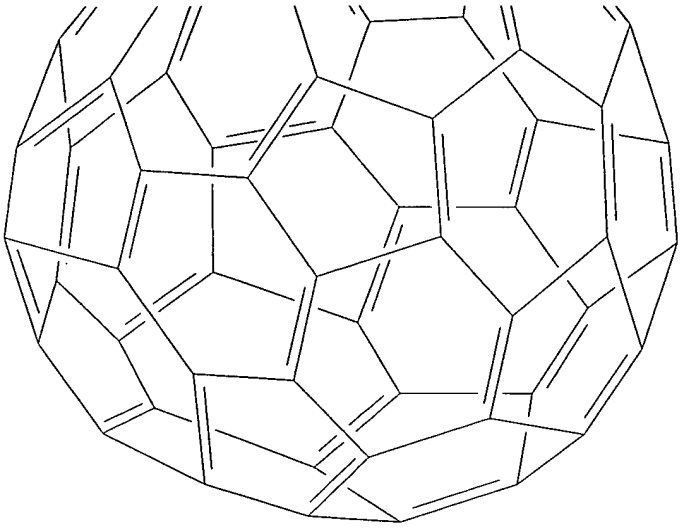
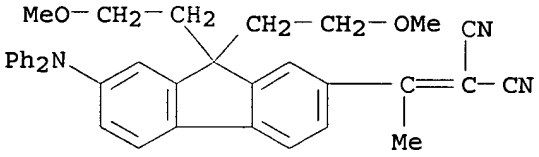
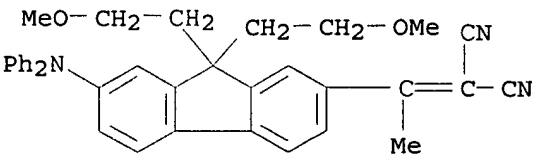


IT **874200-97-2**
RL: FMU (Formation, unclassified); PRP (Properties); FORM (Formation, nonpreparative)
(formation by chemical oxidation; photoinduced processes in a (diphenylamino)fluorene-dicyanoethylene-methano[60]fullerene triad)
RN 874200-97-2 CAPLUS
CN Propanedinitrile, [1-[7-(diphenylamino)-9,9-bis(2-methoxyethyl)-9H-fluoren-2-yl]ethylidene]-, radical ion(1+) (9CI) (CA INDEX NAME)



IT **874200-95-0P**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(reference compound; photoinduced processes in a (diphenylamino)fluorene-dicyanoethylene-methano[60]fullerene triad)
RN 874200-95-0 CAPLUS
CN Propanedinitrile, [1-[7-(diphenylamino)-9,9-bis(2-methoxyethyl)-9H-fluoren-2-yl]ethylidene]- (9CI) (CA INDEX NAME)

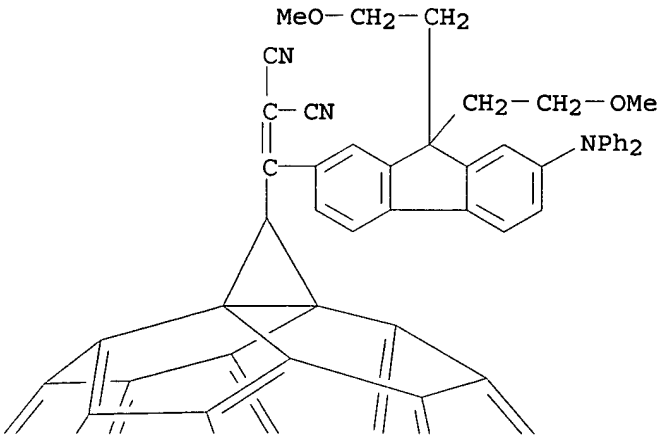


IT **874200-96-1P**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(target triad; photoinduced processes in a (diphenylamino)fluorene-dicyanoethylene-methano[60]fullerene triad)

RN 874200-96-1 CAPLUS

CN Propanedinitrile, [3'H-cyclopropa[1,9][5,6]fulleren-C60-Ih-3'-yl[7-(diphenylamino)-9,9-bis(2-methoxyethyl)-9H-fluoren-2-yl]methylene]- (9CI) (CA INDEX NAME)

PAGE 1-A



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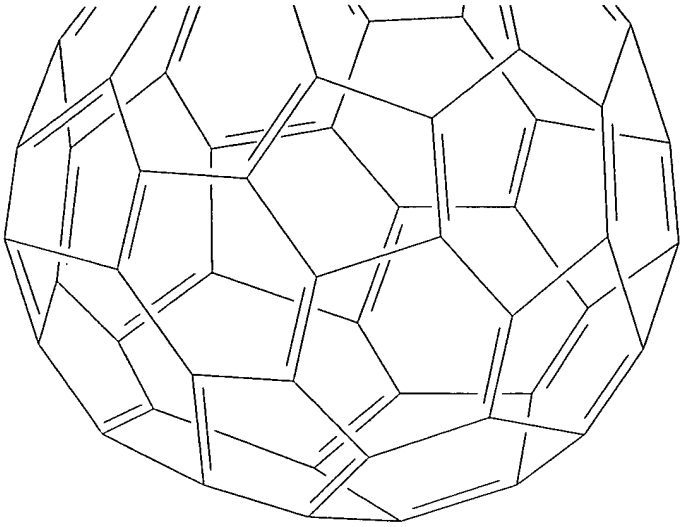


REFERENCE COUNT: 90 THERE ARE 90 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 4 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:1323366 CAPLUS
DOCUMENT NUMBER: 144:483596
TITLE: Singlet oxygen production by amphiphilic C60 derivatives and its correlation to cell cytotoxicity in vitro
AUTHOR(S): So, Grace; Karotki, Aliaksandr; Verma, Sarika; Hauck, Tanya S.; Wilson, Brian; Pritzker, Kenneth P. H.; Chiang, Long
CORPORATE SOURCE: Department of Materials Science and Engineering, Univ. of Toronto, Can.
SOURCE: Proceedings of SPIE-The International Society for Optical Engineering (2005), 5969(Photonic Applications in Biosensing and Imaging), 59690D/1-59690D/8
CODEN: PSISDG; ISSN: 0277-786X
PUBLISHER: SPIE-The International Society for Optical Engineering
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Fullerene derivs. have appealing properties that can potentially be used in materials science and medical applications. In particular, fullerenes are known to produce reactive oxygen species upon their excitation with light. This makes them particularly attractive as photosensitizers for photodynamic therapy (PDT). Photodynamic therapy is a new modality of treatment of cancer as well as some non-cancerous conditions. It involves the combined actions of a drug (photosensitizer) and light to produce a cytotoxic effect. Water-soluble hexa(sulfo-n-butyl)[60]fullerenes (FC4S) was reported recently to generate singlet oxygen (1O2) and superoxide radical (O2-·) upon its excitation with light, making it a promising candidate for PDT treatments. Recently, we synthesized new amphiphilic fullerene derivs., namely, [60]fullerene-diphenylaminofluorene-oligo(ethylene glycol) conjugates, C60(>DPAF-PEG600) and C60(>DPAF-PEG2000), as potential photosensitizers. In this paper we compare FC4S to PEG-based fullerenes in terms of their singlet oxygen photosensitization ability. We measured time-resolved kinetics of singlet

oxygen luminescence photosensitized by excitation of fullerenes via a 10 ns pulsed laser at 523 nm. For FC4S we observed "normal" kinetics with a monoexponential decay profile giving a time constant 3.8 us in water. In contrast, for the case of C60(>DPAF-PEG600) and C60(>DPAF-PEG2000), a non-monoexponential decay profile with a long tail (.apprx. 102 μs) in water was observed We hypothesize that this is due to formation of vesicles by PEG fullerenes in aqueous solution To investigate photodynamic activity of these fullerene derivs. in vitro, we used HeLa human adenocarcinoma and B16 mouse melanoma cell lines. FC4S showed clear photodynamic effects in both cell lines. The total fluence required to kill 50% of the cells at the drug concentration of 20 μM was 36 Jcm-2 for HeLa cells and 72 Jcm-2 for B16 cells. Neither PEG-based fullerene derivs. showed any appreciable photodynamic activity, possibly, due to low efficiency of singlet oxygen generation.

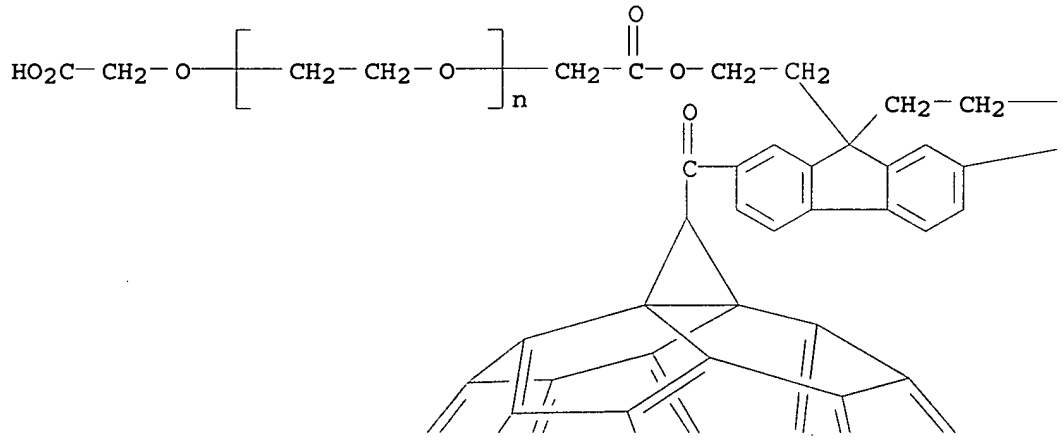
IT **851204-04-1**

RL: DMA (Drug mechanism of action); PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(singlet oxygen production by amphiphilic C60 derivs. and its correlation to cell cytotoxicity in vitro)

RN 851204-04-1 CAPLUS

CN Poly(oxy-1,2-ethanediyl), α,α'-[[2-(3'H-cyclopropa[1,9][5,6]fullerene-C60-Ih-3'-ylcarbonyl)-7-(dipropylamino)-9H-fluoren-9-ylidene]bis[2,1-ethanediyloxy(2-oxo-2,1-ethanediyl)]]bis[ω-(carboxymethoxy)- (9CI) (CA INDEX NAME)

PAGE 1-A



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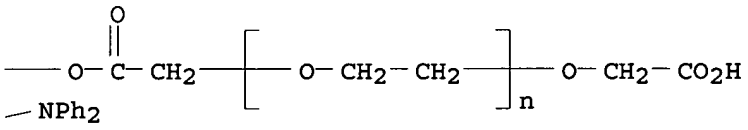

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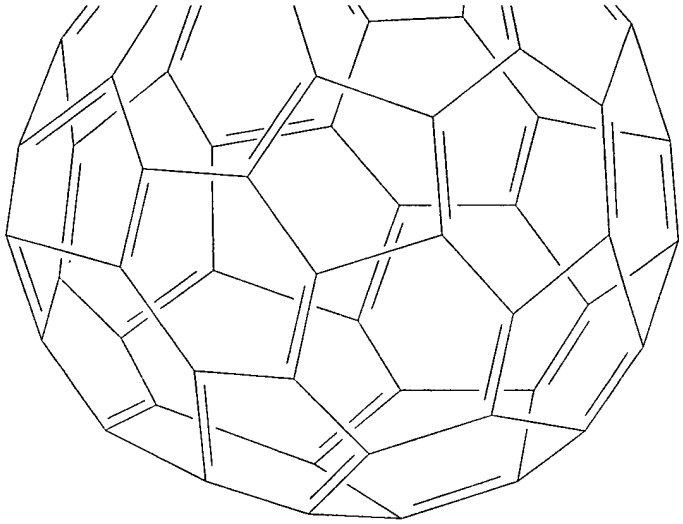


REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 5 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:1228344 CAPLUS
DOCUMENT NUMBER: 144:129366
TITLE: Synthesis of Water-Soluble Highly Two-Photon Responsive [60]Fullerene-Diphenylaminofluorene Chromophore Dyads
AUTHOR(S): Verma, Sarika; Padmawar, Prashant; Hauck, Tanya; Canteenwala, Taizoon; Chiang, Long; Pritzker, Kenneth
CORPORATE SOURCE: Department of Chemistry, University of Massachusetts, Lowell, MA, USA
SOURCE: Journal of Macromolecular Science, Part A: Pure and Applied Chemistry (2005), A42(11), 1497-1505
CODEN: JSPCE6; ISSN: 1060-1325
PUBLISHER: Taylor & Francis, Inc.
DOCUMENT TYPE: Journal

LANGUAGE: English

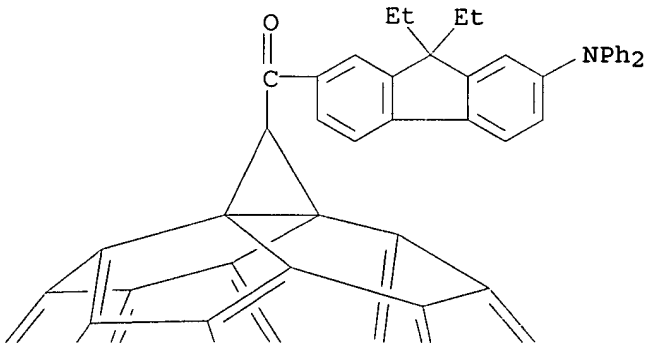
AB We have synthesized an amphiphilic donor-acceptor type [60]fullerene-diphenylaminofluorene (DPAF) containing oligo(ethylene glycol) moieties, denoted C60-DPAF-EGn. The hydrophobic C60-DPAF moiety consisting of an electron-donating diphenylaminofluorene unit and an electron-accepting C60 cage shows large cross-sections of two-photon absorptivity (2PA) in the nanosecond region. The attachment of two hydrophilic oligo(ethylene glycol) segments on DPAF mainly increases water-solubility of the corresponding chromophoric macromols. that enhances their potential application in biomedical treatments. Here, we present the synthesis and self-assembly study of these amphiphilic materials in aqueous solution New C60-DPAF-EGn compds. were structurally characterized by various spectroscopic methods including, 1H-NMR, 13C-NMR, FT-IR, and UV spectroscopies. In the vesicle formation investigation, UV-visible absorption spectra, dynamic light scattering measurements, and transmission electron microscopy were used as primary methods for morphol. characterization of mol. self-assembly behavior of these amphiphilic [60]fullerene-diphenylaminofluorene chromophore dyads.

IT **486998-58-7 649724-49-2 649724-50-5**
RL: RCT (Reactant); RACT (Reactant or reagent)
(in synthesis of water-soluble highly two-photon responsive [60]Fullerene-diphenylaminofluorene chromophore dyads)

RN 486998-58-7 CAPLUS

CN Methanone, 3'H-cyclopropa[1,9][5,6]fulleren-C60-Ih-3'-yl[7-(diphenylamino)-9,9-diethyl-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)

PAGE 1-A



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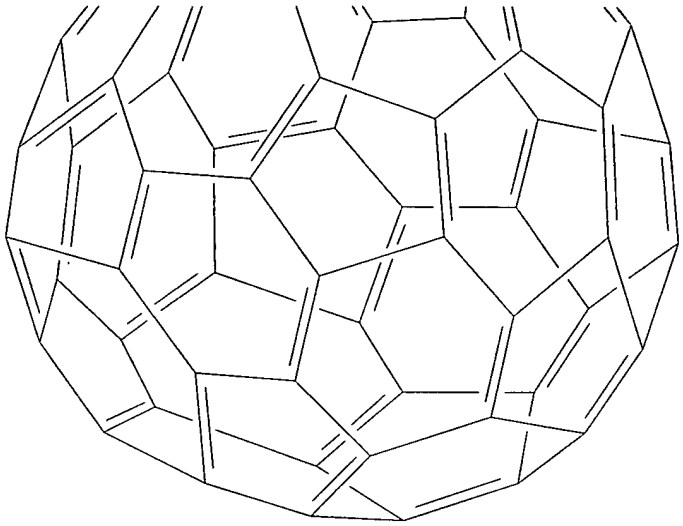
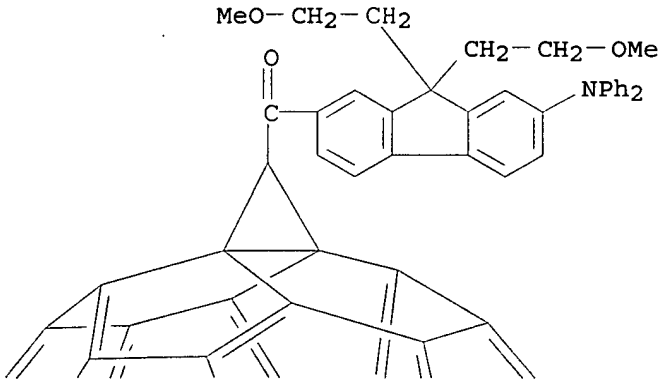


RN 649724-49-2 CAPLUS
CN Methanone, 3'H-cyclopropa[1,9][5,6]fulleren-C60-Ih-3'-yl[7-(diphenylamino)-9,9-bis(2-methoxyethyl)-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)

PAGE 1-A



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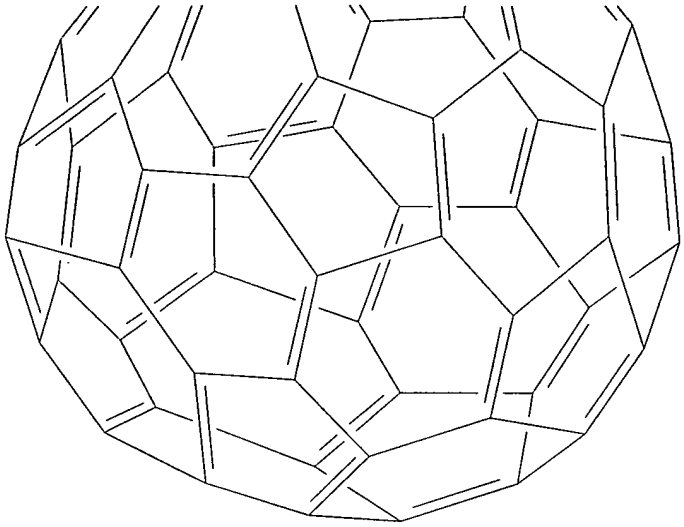
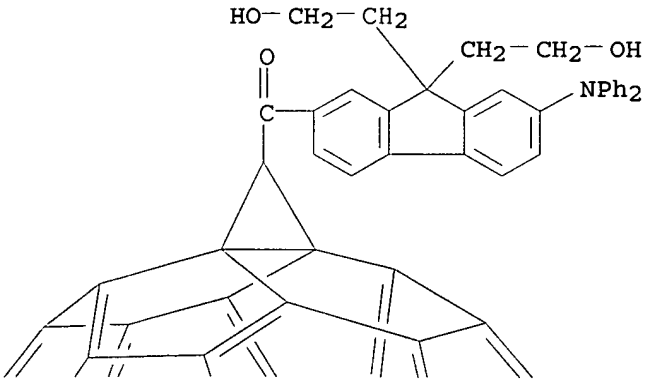


RN 649724-50-5 CAPLUS
CN Methanone, 3'H-cyclopropa[1,9][5,6]fulleren-C60-Ih-3'-yl[7-(diphenylamino)-9,9-bis(2-hydroxyethyl)-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)

PAGE 1-A



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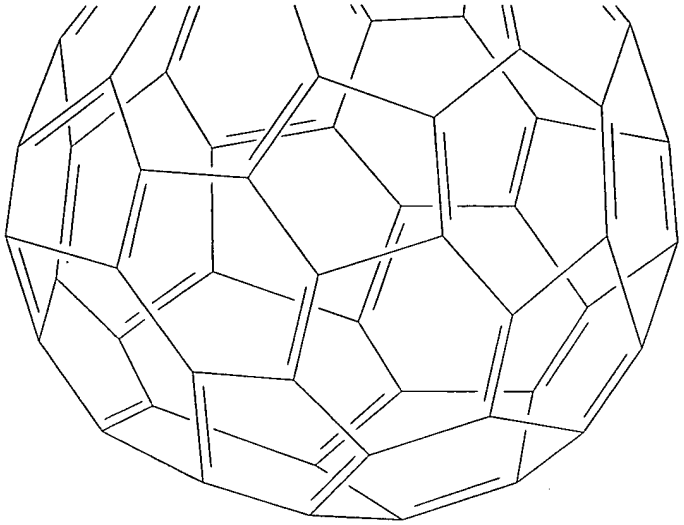
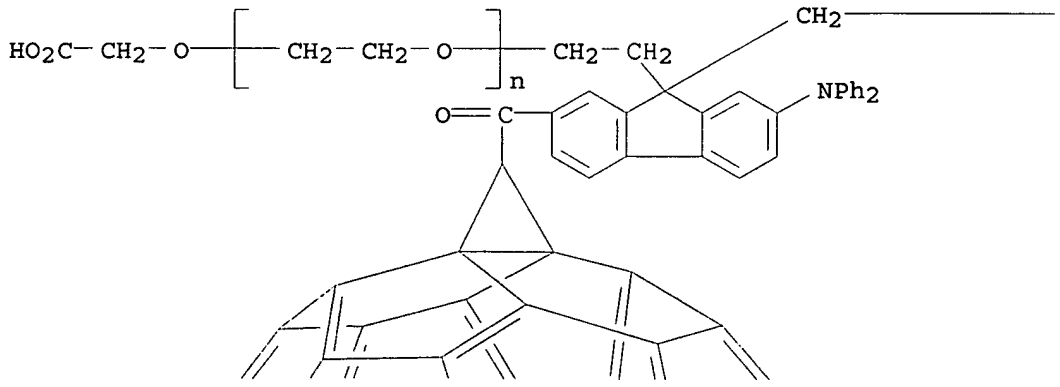


IT **873437-03-7P**
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(synthesis of water-soluble highly two-photon responsive [60]Fullerene-diphenylaminofluorene chromophore dyads)
RN 873437-03-7 CAPLUS
CN Poly(oxy-1,2-ethanediyl), α,α'-[[2-(3'H-cyclopropa[1,9][5,6]fulleren-C60-Ih-3'-ylcarbonyl)-7-(diphenylamino)-9H-fluoren-9-ylidene]di-2,1-ethanediyl]bis[ω-(carboxymethoxy)- (9CI) (CA INDEX NAME)

PAGE 1-A



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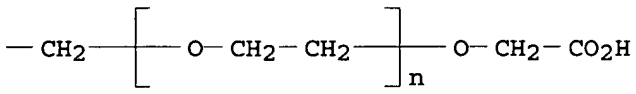
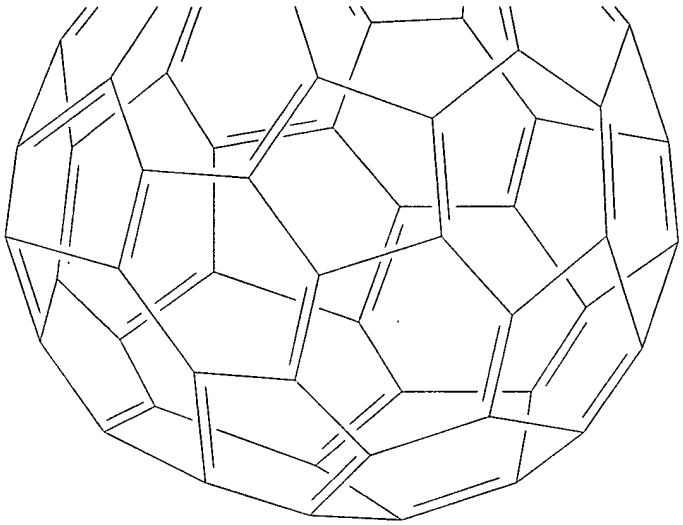


PAGE 2-A



REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

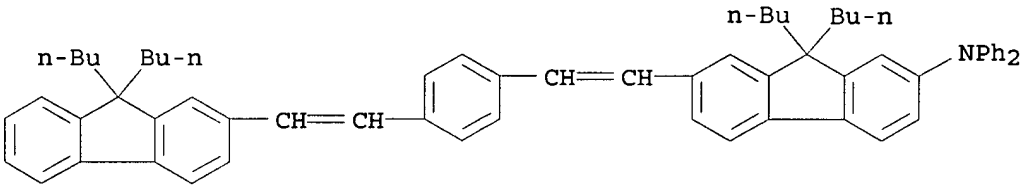
L6 ANSWER 6 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:1085998 CAPLUS
DOCUMENT NUMBER: 144:42395
TITLE: π-Conjugated Dendritic Nanosized Chromophore with Enhanced Two-Photon Absorption
AUTHOR(S): Zheng, Qingdong; He, Guang S.; Prasad, Paras N.
CORPORATE SOURCE: Department of Chemistry, Institute for Lasers, Photonics and Biophotonics, State University of New York at Buffalo, Buffalo, NY, 14260, USA
SOURCE: Chemistry of Materials (2005), 17(24), 6004-6011
CODEN: CMATEX; ISSN: 0897-4756
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A novel π-conjugated dendritic nanosized chromophore,

1,3,5-tris(7,12-bis(2-{4-[2-(7-diphenylamino-9,9-dibutyl-9H-fluoren-2-yl)-vinyl]-phenyl}-vinyl)-5,5,10,10,15,15-hexabutyl-10,15-dihydro-5H-diindeno[1,2-a;1',2'-c]fluoren-2-yl)-benzene (3), was synthesized and characterized, together with its corresponding one- and three-branched units. Two-photon absorption (TPA) spectra for these chromophores were measured by the nonlinear transmission spectral technique which utilizes a femtosecond white-light continuum. The TPA peak value for the dendritic chromophore is 5.47 + 10-20 cm4/GW, 15.6 times larger than that for the one-branched dipolar chromophore (0.35 + 10-20 cm4/GW), [9,9-dibutyl-7-(2-{4-[2-(9,9-dibutyl-9H-fluoren-2-yl)-vinyl]-phenyl}-vinyl)-9H-fluoren-2-yl]-diphenylamine (1). The three-branched chromophore, 2,7,12-tris(2-{4-[2-(9,9-dibutyl-7-diphenylamino-9H-fluoren-2-yl)-vinyl]-phenyl}-vinyl)-5,5,10,10,15,15-hexabutyl-10,15-dihydro-5H-diindeno[1,2-a;1',2'-c]fluorene (2) has a TPA peak value of 2.28 + 10-20 cm4/GW, 6.5 times as large as that for compound 1. The enhanced two-photon absorption found in these two multibranched chromophores is attributed to the fact that the dendritic or the three-branched chromophore has both an extended π-conjugated system and an increased intramol. charge redistribution compared to the one-branched chromophore. With use of comparable structure unit based concns., the two-photon excited (TPE) fluorescence intensity for this dendritic chromophore (0.0033 M solution) was found to be enhanced by a factor of 2.9 compared to that for chromophore 1 (0.02 M solution), which would offer a major advantage in TPE fluorescence related applications.

IT **870772-54-6P**
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(one-branched chromophore; synthesis and linear- and two-photon absorption and two-photon excited fluorescence of π-conjugated dendritic nanosized chromophores containing diphenylamine- and Bu groups)

RN 870772-54-6 CAPLUS

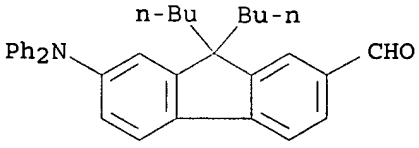
CN 9H-Fluoren-2-amine, 9,9-dibutyl-7-[2-[4-[2-(9,9-dibutyl-9H-fluoren-2-yl)ethenyl]phenyl]ethenyl]-N,N-diphenyl- (9CI) (CA INDEX NAME)



IT **870772-56-8**
RL: RCT (Reactant); RACT (Reactant or reagent)
(synthesis of π-conjugated dendritic nanosized chromophores containing diphenylamine- and Bu groups)

RN 870772-56-8 CAPLUS

CN 9H-Fluorene-2-carboxaldehyde, 9,9-dibutyl-7-(diphenylamino)- (9CI) (CA INDEX NAME)

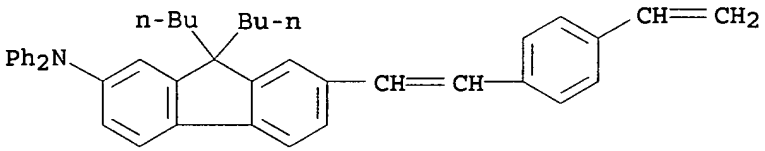


IT **870772-57-9P**

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(synthesis of π-conjugated dendritic nanosized chromophores containing diphenylamine- and Bu groups)

RN 870772-57-9 CAPLUS

CN 9H-Fluoren-2-amine, 9,9-dibutyl-7-[2-(4-ethenylphenyl)ethenyl]-N,N-diphenyl- (9CI) (CA INDEX NAME)



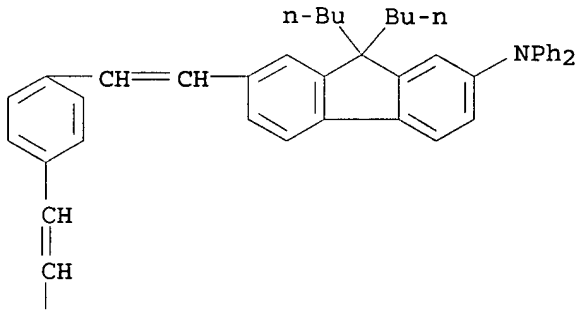
IT **870772-55-7P**

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(three-branched chromophore; synthesis and linear- and two-photon absorption and two-photon excited fluorescence of π-conjugated dendritic nanosized chromophores containing diphenylamine- and Bu groups)

RN 870772-55-7 CAPLUS

CN 9H-Fluoren-2-amine, 7,7',7''-[(5,5,10,10,15,15-hexabutyl-10,15-dihydro-5H-tribenzo[a,f,k]trindene-2,7,12-triyl)tris(2,1-ethenediyl-4,1-phenylene-2,1-ethenediyl)]tris[9,9-dibutyl-N,N-diphenyl- (9CI) (CA INDEX NAME)

PAGE 1-B



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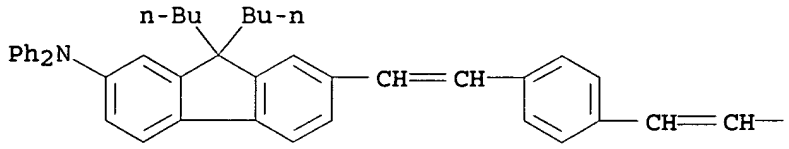

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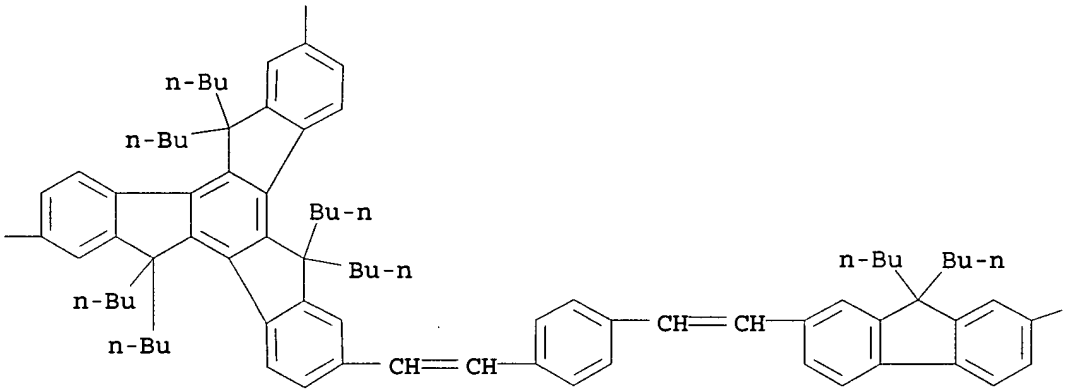


PAGE 2-C

NPh2

REFERENCE COUNT: 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 7 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:1062319 CAPLUS
DOCUMENT NUMBER: 144:23966
TITLE: New fluorophores based on trifluorenylamine with very large intrinsic three-photon absorption cross sections
AUTHOR(S): Suo, Zhiyong; Drobizhev, Mikhail; Spangler, Charles W.; Christensson, Niklas; Rebane, Alexander
CORPORATE SOURCE: Physics Department and Chemistry and Biochemistry Department, Montana State University, Bozeman, MT,

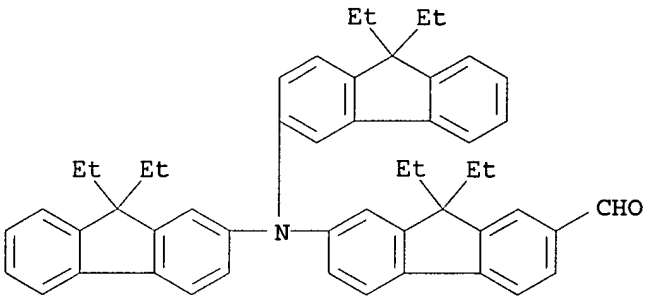
59717, USA
SOURCE: Organic Letters (2005), 7(22), 4807-4810
CODEN: ORLEF7; ISSN: 1523-7060
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 144:23966

AB A new fluorophore, tris(9,9-diethyl-9H-fluorenyl)amine, was synthesized by the Buchwald-Hartwig reaction of 2-aminofluorene, and based on this mol. three more fluorophores were prepared that exhibit a very large intrinsic three-photon absorption in the near-IR region, which scales as a third power of the bridge length.

IT **870283-38-8P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(intermediate; preparation of fluorophores based on trifluorenylamine with very large intrinsic three-photon absorption cross sections)

RN 870283-38-8 CAPLUS

CN 9H-Fluorene-2-carboxaldehyde, 7-[(9,9-diethyl-9H-fluoren-2-yl)(9,9-diethyl-9H-fluoren-3-yl)amino]-9,9-diethyl- (9CI) (CA INDEX NAME)

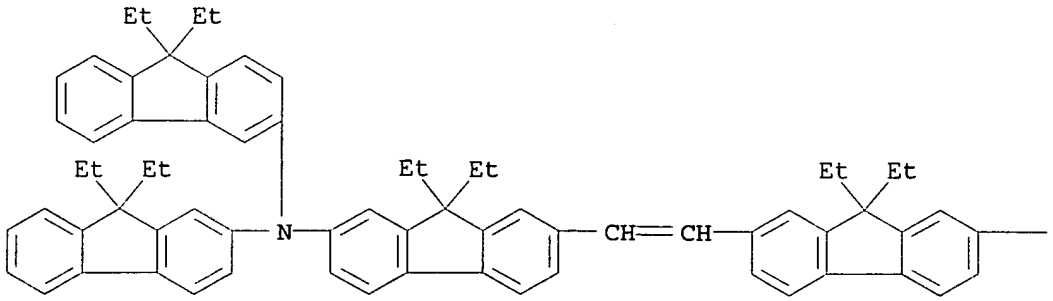


IT **870283-42-4P 870283-43-5P**
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(orange fluorophore; preparation of fluorophores based on trifluorenylamine with very large intrinsic three-photon absorption cross sections)

RN 870283-42-4 CAPLUS

CN 9H-Fluoren-2-amine, 7,7'-(1,2-ethenediyl)bis[N-(9,9-diethyl-9H-fluoren-2-yl)-N-(9,9-diethyl-9H-fluoren-3-yl)-9,9-diethyl- (9CI) (CA INDEX NAME)

PAGE 1-A



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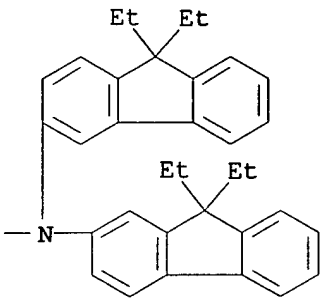
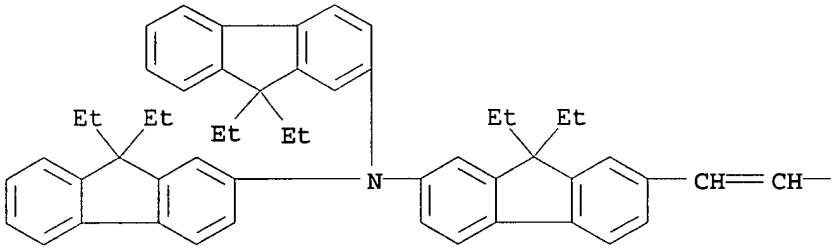


RN 870283-43-5 CAPLUS
CN 9H-Fluoren-2-amine, 7,7'-[(9,9-diethyl-9H-fluorene-2,7-diyl)di-2,1-ethenediyl]bis[9,9-diethyl-N,N-bis(9,9-diethyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)

PAGE 1-A



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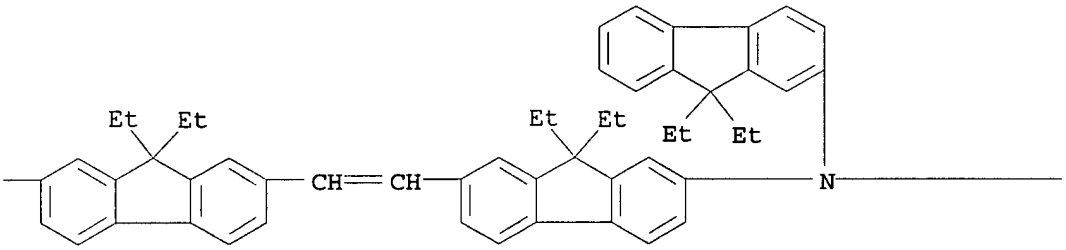

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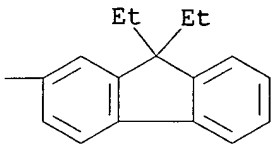
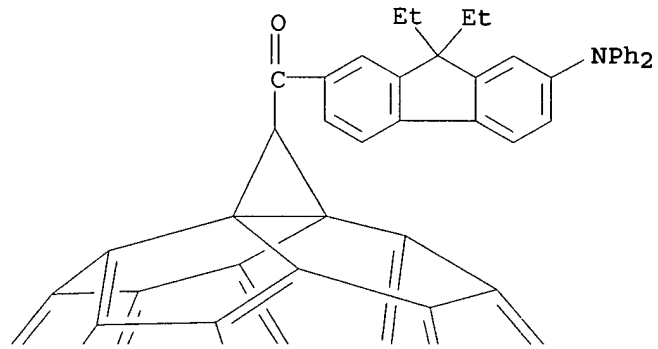


REFERENCE COUNT: 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 8 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:988390 CAPLUS
DOCUMENT NUMBER: 143:451502
TITLE: Synthesis of C60-diphenylaminofluorene dyads with two-photon absorbing characteristics
AUTHOR(S): Padmawar, Prashant A.; Canteenwala, Taizoon; Verma, Sarika; Tan, Loon-Seng; He, Guang S.; Prasad, Paras N.; Chiang, Long Y.
CORPORATE SOURCE: Department of Chemistry, Institute of Nanoscience and Engineering Technology, University of Massachusetts, Lowell, MA, 01854, USA
SOURCE: Synthetic Metals (2005), 154(1-3), 185-188
CODEN: SYMEDZ; ISSN: 0379-6779
PUBLISHER: Elsevier B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Linear A-sp3-D mol. conjugates as 9,9-dialkyl-2-diphenylaminofluorene (DPAF-C,)-C60 monoadducts were demonstrated using methanoketo unit as a linker to bridge the DPAF donor moiety and the fullerene acceptor chromophore together within a short distance of roughly 2.0 Å. Target products of C60-diphenylaminofluorene dyads C60(>DPAF-C2) and C60(>DPAF-C18) were synthesized using Bingel cyclopropanation reaction from the corresponding 7-α-bromoacetyl-9,9-dialkyl-2-diphenylaminofluorene precursors. Both dyads C60(>DPAF-C2) and C60(>DPAF-C18) were characterized by spectroscopic methods and simultaneous two-photon excitation measurements, showing large two-photon absorption cross-sections in the nanosecond regime.
IT **486998-58-7P 868852-15-7P**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(synthesis and photophys. of C60-diphenylaminofluorene dyads with two-photon absorbing characteristics)
RN 486998-58-7 CAPLUS
CN Methanone, 3'H-cyclopropa[1,9][5,6]fulleren-C60-Ih-3'-yl[7-(diphenylamino)-9,9-diethyl-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)

PAGE 1-A



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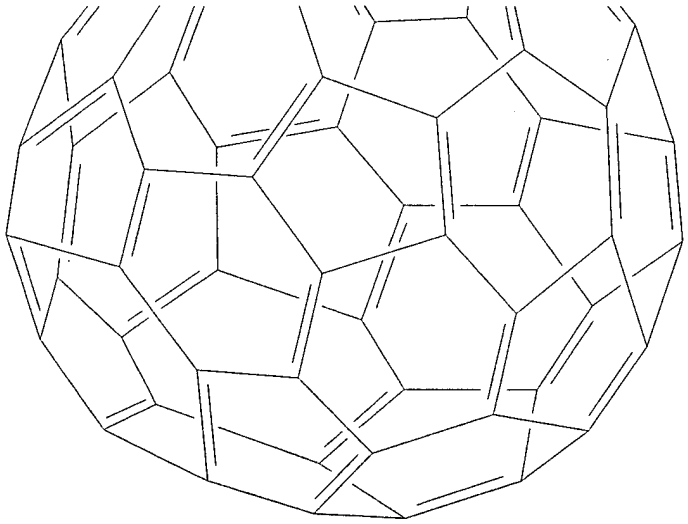
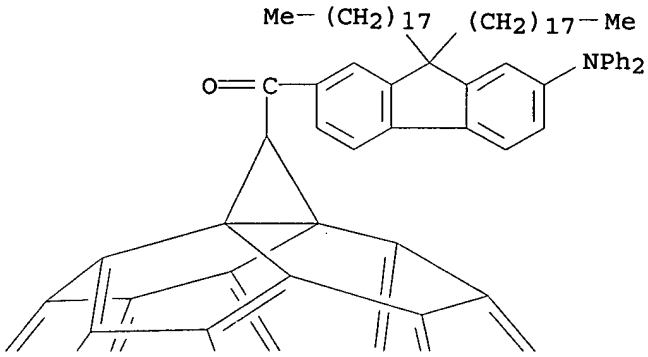


RN 868852-15-7 CAPLUS
CN Methanone, 3'H-cyclopropa[1,9][5,6]fulleren-C60-Ih-3'-yl[7-(diphenylamino)-9,9-dioctadecyl-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)

PAGE 1-A



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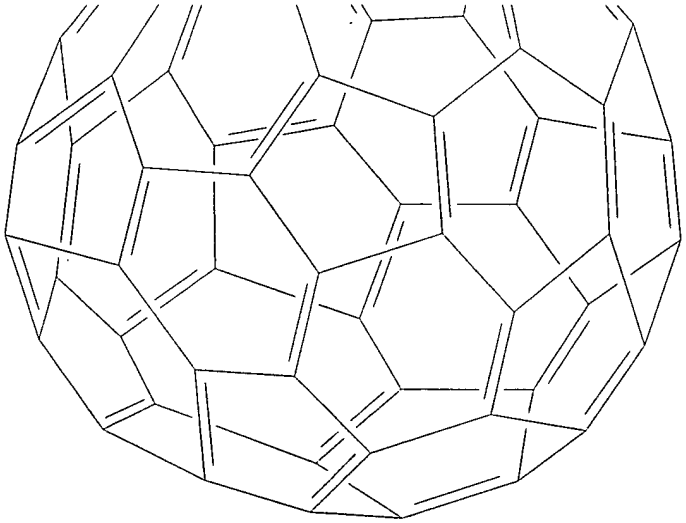
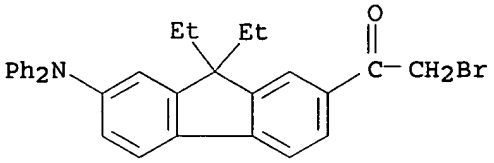
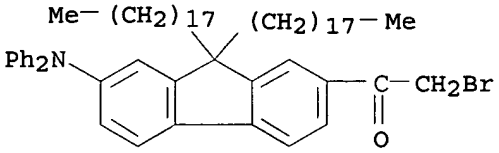


IT **486998-57-6 868852-16-8**
RL: RCT (Reactant); RACT (Reactant or reagent)
(synthesis of C60-diphenylaminofluorene dyad)
RN 486998-57-6 CAPLUS
CN Ethanone, 2-bromo-1-[7-(diphenylamino)-9,9-diethyl-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)

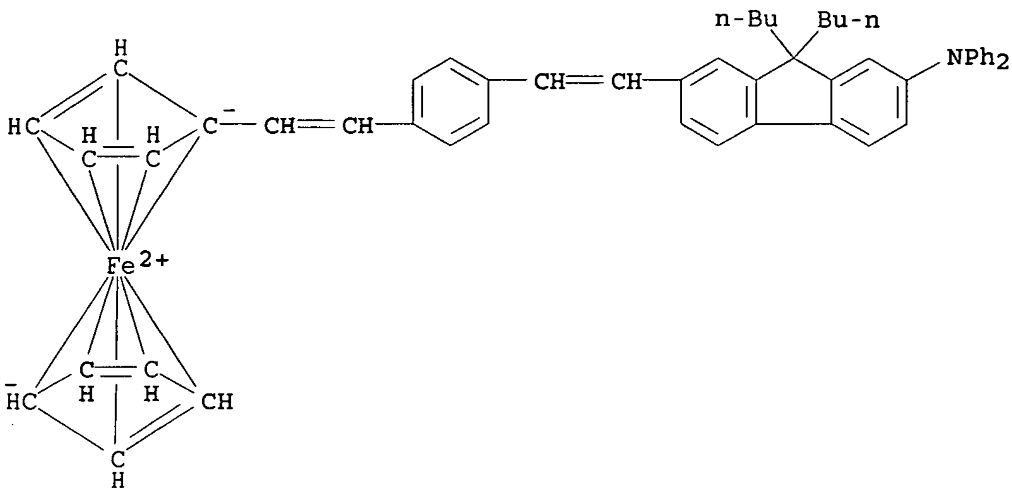


RN 868852-16-8 CAPLUS
CN Ethanone, 2-bromo-1-[7-(diphenylamino)-9,9-dioctadecyl-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 9 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:865315 CAPLUS
DOCUMENT NUMBER: 143:412994
TITLE: Synthesis, two- and three-photon absorption, and optical limiting properties of fluorene-containing ferrocene derivatives
AUTHOR(S): Zheng, Qingdong; He, Guang S.; Lu, Changgui; Prasad, Paras N.
CORPORATE SOURCE: Department of Chemistry, Institute for Lasers, Photonics and Biophotonics, State University of New York at Buffalo, Buffalo, NY, 14260, USA
SOURCE: Journal of Materials Chemistry (2005), 15(34), 3488-3493
CODEN: JMACEP; ISSN: 0959-9428
PUBLISHER: Royal Society of Chemistry
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The synthesis and characterization of 2 novel fluorene-containing ferrocene derivs. were reported. The 2-photon absorption spectra and 3-photon absorption cross-section values in the IR region for these 2 chromophores were studied. Together with their thermal stabilities, their linear absorption and emission properties were also studied. The ferrocene derivs. have large 2-photon and 3-photon absorption in IR region as well as excellent thermal stabilities. The 3-photon absorption based optical limiting properties of these 2 ferrocene derivs. were studied by using sub-picosecond IR laser pulses.
IT **867045-90-7P**, 9,9-Dibutyl-7-[(E)-2-[4-[(E)-(2-ferrocenylvinyl)]phenyl]vinyl-9H-fluoren-2-yl]diphenylamine
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(synthesis, two- and three-photon absorption, and optical limiting properties of fluorene-containing ferrocene derivs.)
RN 867045-90-7 CAPLUS
CN Ferrocene, [(1E)-2-[4-[(1E)-2-[9,9-dibutyl-7-(diphenylamino)-9H-fluoren-2-yl]ethenyl]phenyl]ethenyl]- (9CI) (CA INDEX NAME)



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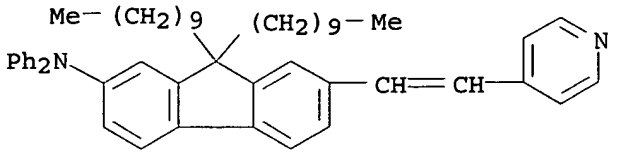
L6 ANSWER 10 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:780629 CAPLUS
DOCUMENT NUMBER: 144:201429
TITLE: Measurement of the two-photon absorption cross sections of dicyanomethylene-pyrans by the z-scan method
AUTHOR(S): Chunosova, S. S.; Svetlichnyi, V. A.; Meshalkin, Yu. P.
CORPORATE SOURCE: Institute of Laser Physics, Siberian Branch, Russian Academy of Sciences, Novosibirsk, 630090, Russia
SOURCE: Quantum Electronics (2005), 35(5), 415-418
CODEN: QUELEZ; ISSN: 1063-7818
PUBLISHER: Turpion Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The two-photon absorption cross sections of three dicyanomethylene-pyrane DCM dyes excited by a femtosecond pulsed from a Ti:sapphire laser are measured by the open-aperture z-scan method. The exptl. transmission curves are approximated by the corresponding model curves to give the two-photon absorption cross sections equal to 5.1 + 103 GM, 5.7 + 103 GM, and 8.4 + 103 GM for DCM, DCM-17, and DCM-doa, resp. (1 GM = 10-50 cm4 s phot-1 mol-1).

IT **191667-13-7**, AF-50
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(measurement of two-photon absorption cross sections of dicyanomethylene-pyrans by the z-scan method)

RN 191667-13-7 CAPLUS

CN 9H-Fluoren-2-amine, 9,9-didecyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 11 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:727593 CAPLUS
DOCUMENT NUMBER: 144:312635
TITLE: Synthesis and water-solubility of pegylated diphenylaminofluorenyl monoadduct of fullerene
AUTHOR(S): Verma, Sarika; Padmawar, Prashant A.; Canteenwala, Taizoon; Chiang, Long Y.
CORPORATE SOURCE: Department of Chemistry, University of Massachusetts Lowell, Lowell, MA, 01854, USA
SOURCE: Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (2005), 46(2), 711-712
CODEN: ACPPAY; ISSN: 0032-3934
PUBLISHER: American Chemical Society, Division of Polymer Chemistry
DOCUMENT TYPE: Journal; (computer optical disk)
LANGUAGE: English

AB Recent development on two-photon absorption (2PA) excitation process may serve as a potential alternative PDT treatment procedure because of its ability to focus on a confined small treatment area of diseased tissues in a greater depth using a spectral window of 800-1100 nm in mammalian tissue. Synthesis of amphiphilic fullerene-chromophore conjugates containing polar hydrophilic functional groups, such as carboxylic acid and poly(ethylene glycol), leading to water-soluble fullerene derivs. enhances their possibility in biol. applications. Accordingly, we synthesized novel A-sp3-D type amphiphilic 1;603;fullerene-diphenylaminofluorene-poly(ethylene glycol) conjugates, namely, C60(>DPAF-PEG). Compound C60(>DPAF-PEG) consists of a fullerene cage as the electron acceptor (A) moiety and diphenylaminofluorene segment as the donor (D) moiety, showing high two-photon absorption (2PA) cross-sections in nanosecond regime. Here, we present the synthesis, characterization and mol. self-assembly of these amphiphilic two-photon active fullerenic materials in aqueous solns. Resulting amphiphilics were characterized by FT-IR, DSC, TEM, uv-visible and fluorescence spectroscopy.

IT **879872-39-6P**
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(synthesis and water-solubility of polyethylene glycol-diphenylaminofluorenyl monoadduct of fullerene)

RN 879872-39-6 CAPLUS
CN Poly(oxy-1,2-ethanediyl), α,α'-[[2-(3'H-cyclopropa[1,9][5,6]fullerene-C60-Ih-3'-ylcarbonyl)-7-(diphenylamino)-9H-fluoren-9-ylidene]bis[2,1-ethanediyloxy(1,4-dioxo-4,1-butanediyl)]]bis[ω-methoxy- (9CI) (CA INDEX NAME)

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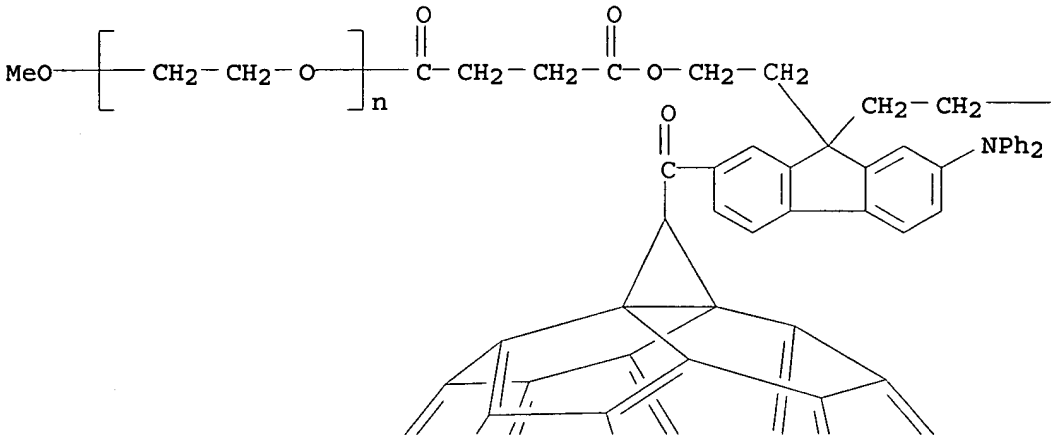

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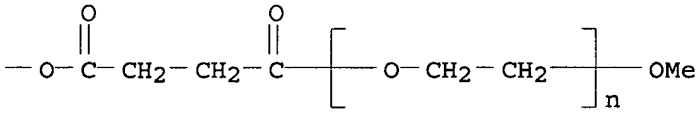

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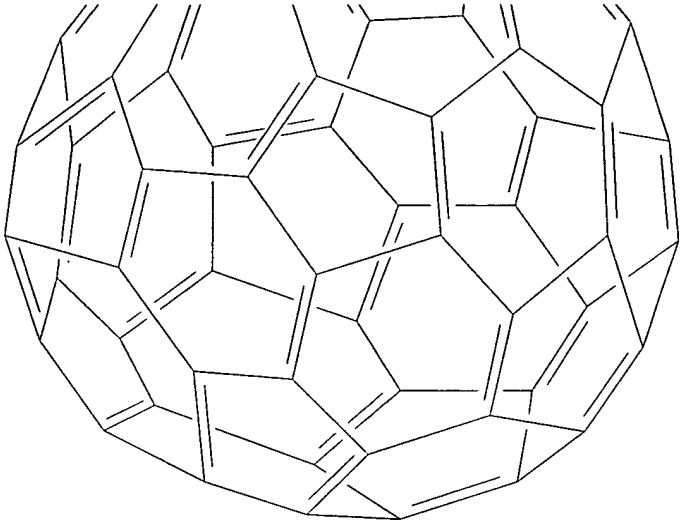
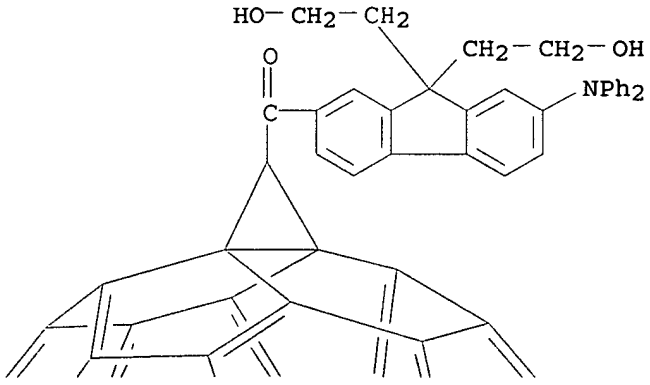


IT **649724-50-5**
RL: RCT (Reactant); RACT (Reactant or reagent)
(synthesis and water-solubility of polyethylene glycol-diphenylaminofluorenyl monoadduct of fullerene)

RN 649724-50-5 CAPLUS

CN Methanone, 3'H-cyclopropa[1,9][5,6]fulleren-C60-Ih-3'-yl[7-(diphenylamino)-9,9-bis(2-hydroxyethyl)-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)

PAGE 1-A



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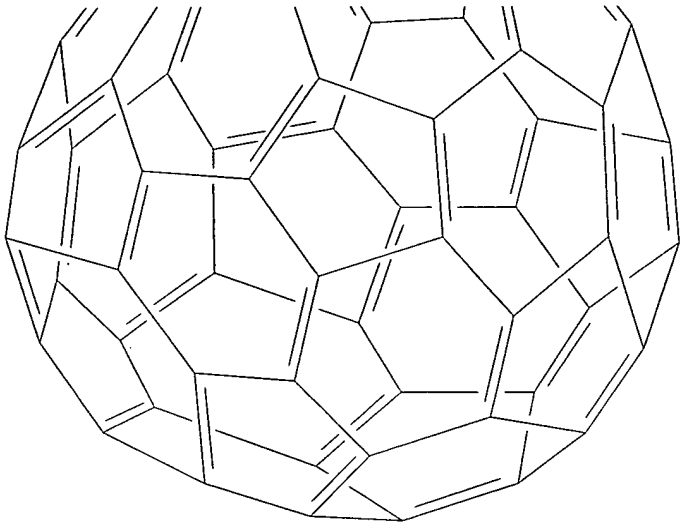


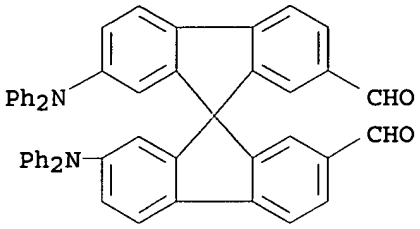
REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 12 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:655378 CAPLUS
DOCUMENT NUMBER: 143:306020
TITLE: Improved Synthesis of 2,2'-Dibromo-9,9'-spirobifluorene and Its 2,2'-Bisdonor-7,7'-bisacceptor-Substituted Fluorescent Derivatives
AUTHOR(S): Chiang, Chih-Long; Shu, Ching-Fong; Chen, Chin-Ti
CORPORATE SOURCE: Department of Applied Chemistry, National Chiao Tung University, Hsin-Chu, 30035, Taiwan
SOURCE: Organic Letters (2005), 7(17), 3717-3720
CODEN: ORLEF7; ISSN: 1523-7060
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 143:306020

AB Pure 2,2'-dibromo-9,9'-spirobifluorene (I) was synthesized by a method that did not involve troublesome dibromination of 9,9'-spirobifluorene or Sandmeyer reaction of 2,2'-diamino-9,9'-spirobifluorene. Starting from 4-Me3SiC6H4B(OH)2, I was prepared by Suzuki cross-coupling with 1,2-C6H4Br2, subsequent lithiation and condensation with (MeO)2CO, further bromodesilation, and finally spirocyclization by classical Clark and Gomberg method. A series of donor-acceptor orthogonally substituted 9,9'-spirobifluorene was subsequently prepared showing rich variation of fluorescence in solution and in solid state. Compound I was studied by x-ray structural anal. [monoclinic, space group P2(1)/c, a 14.5655(5), b 16.5819(5), c 7.9981(2) Å, β 93.4850(10)°, V 1928.16(10) Å3, Z 4].

IT **864957-76-6P**
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of bromospirobifluorene and bisdonor bisacceptor fluorescent derivs.)
RN 864957-76-6 CAPLUS

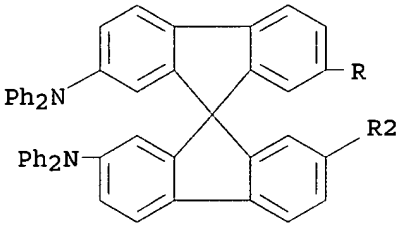
CN 9,9'-Spirobi[9H-fluorene]-2,2'-dicarboxaldehyde, 7,7'-bis(diphenylamino)-
(9CI) (CA INDEX NAME)

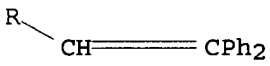


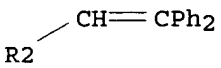
IT **724789-65-5P 864957-77-7P 864957-78-8P**
864957-79-9P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation of bromospirobifluorene and bisdonor bisacceptor fluorescent
derivs.)

RN 724789-65-5 CAPLUS

CN 9,9'-Spirobi[9H-fluorene]-2,2'-diamine, 7,7'-bis(2,2-diphenylethenyl)-
N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)

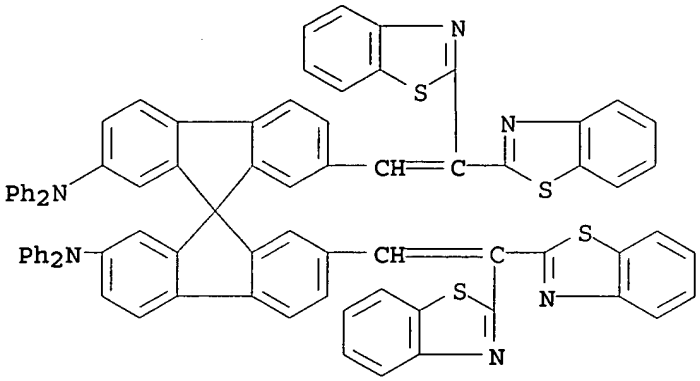




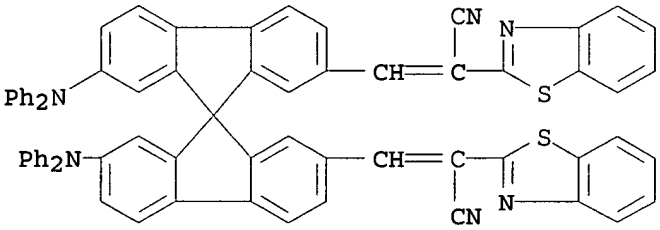


RN 864957-77-7 CAPLUS

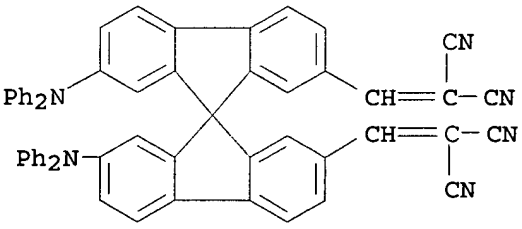
CN 9,9'-Spirobi[9H-fluorene]-2,2'-diamine, 7,7'-bis[2,2-bis(2-
benzothiazolyl)ethenyl]-N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)



RN 864957-78-8 CAPLUS
CN 2-Benzothiazoleacetonitrile, α,α'-[[7,7'-bis(diphenylamino)-9,9'-spirobi[9H-fluorene]-2,2'-diyl]dimethylidyne]bis- (9CI) (CA INDEX NAME)



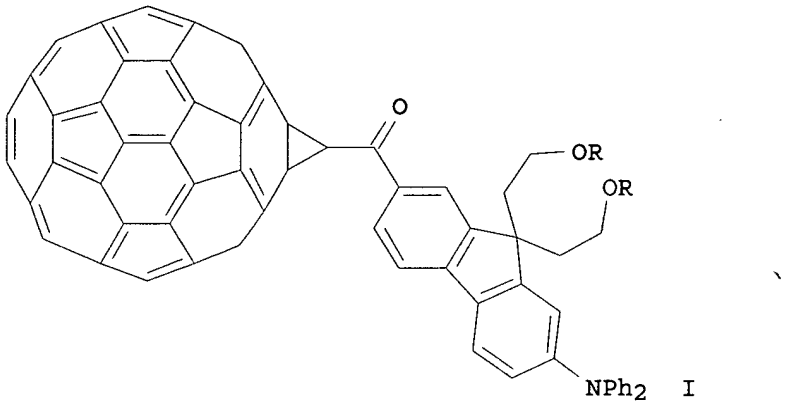
RN 864957-79-9 CAPLUS
CN Propanedinitrile, 2,2'-[[7,7'-bis(diphenylamino)-9,9'-spirobi[9H-fluorene]-2,2'-diyl]dimethylidyne]bis- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 13 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:524644 CAPLUS
DOCUMENT NUMBER: 143:193797
TITLE: Synthesis of hydrophilic two-photon absorptive fullerene-diphenylaminofluorene dyads for molecular self-assembly in water
AUTHOR(S): Verma, Sarika; Hauck, Tanya; Padmawar, Prashant A.; Canteenwala, Taizoon; Chiang, Long Y.; Pritzker, Kenneth P. H.

CORPORATE SOURCE: Department of Chemistry, Institute of Nanoscience and Engineering, University of Massachusetts, Lowell, MA, 01854, USA
SOURCE: Materials Research Society Symposium Proceedings (2005), 846(Organic and Nanocomposite Optical Materials), 275-280
CODEN: MRSPDH; ISSN: 0272-9172
PUBLISHER: Materials Research Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 143:193797
GI



I

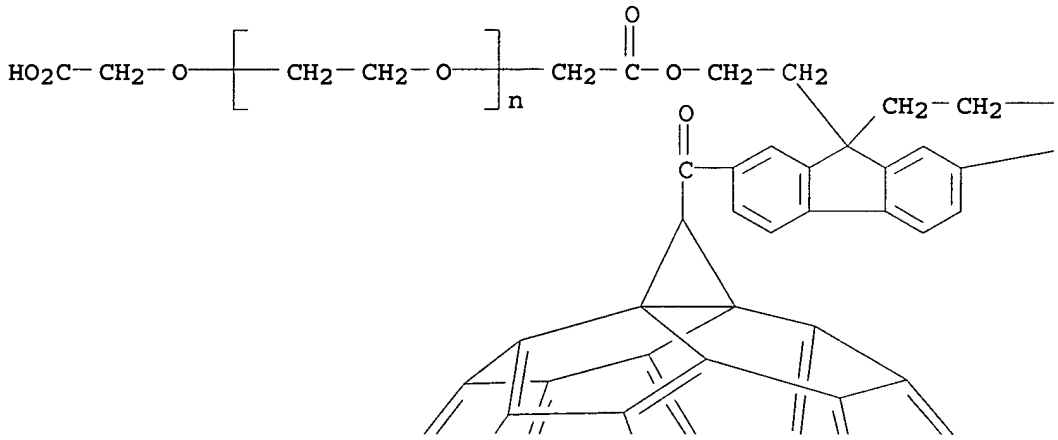
AB Diphenylaminofluorenylcarbonylfullerene I [R = HO2CCH2(OCH2CH2)nOCH2CO] is prepared by DCC-mediated esterification of poly(ethylene glycol) bis(carboxymethyl) ether with I (R = H). I [R = HO2CCH2(OCH2CH2)nOCH2CO] forms spherical aggregates 200-400 nm in diameter by self-assembly at 10 μM concentration in a chloroform/water mixture I [R = HO2CCH2(OCH2CH2)nOCH2CO] is a two-photon absorbing agent with potential for biomedical applications (no data).

IT **851204-04-1P**
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (preparation and self-assembly of a poly(ethylene glycol)-substituted diphenylaminofluorenylcarbonylfullerene as a hydrophilic two-photon-absorbing agent)

RN 851204-04-1 CAPLUS

CN Poly(oxy-1,2-ethanediyl), α,α'-[[2-(3'H-cyclopropa[1,9][5,6]fullerene-C60-Ih-3'-ylcarbonyl)-7-(dipropylamino)-9H-fluoren-9-ylidene]bis[2,1-ethanediyloxy(2-oxo-2,1-ethanediyl)]]bis[ω-(carboxymethoxy)- (9CI) (CA INDEX NAME)

PAGE 1-A



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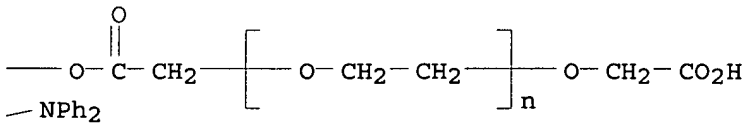

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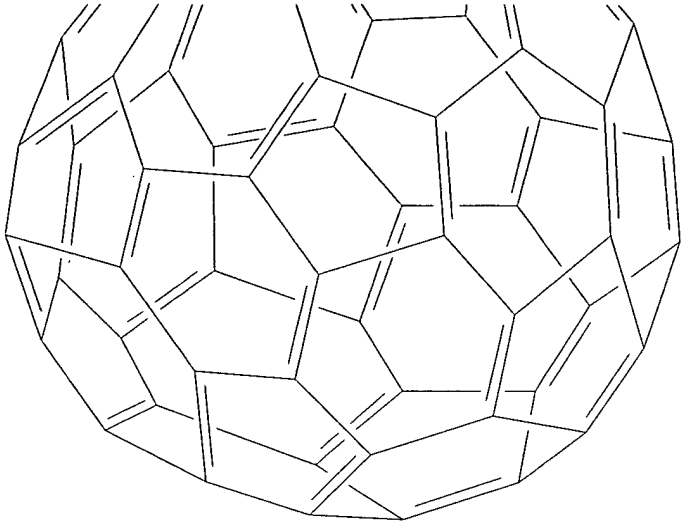
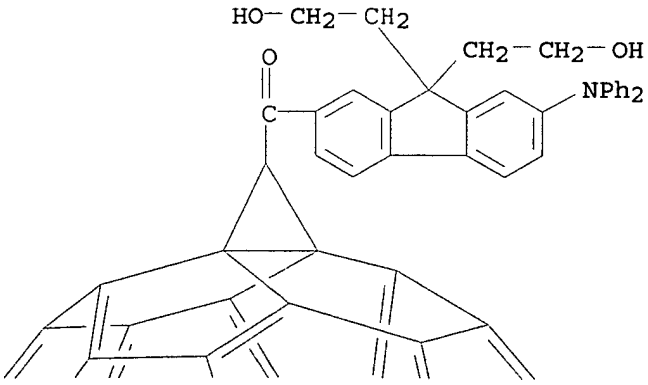


IT **649724-50-5**
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation and self-assembly of a poly(ethylene glycol)-substituted diphenylaminofluorenylcarbonylfullerene as a hydrophilic two-photon-absorbing agent)
RN 649724-50-5 CAPLUS
CN Methanone, 3'H-cyclopropa[1,9][5,6]fulleren-C60-Ih-3'-yl[7-(diphenylamino)-9,9-bis(2-hydroxyethyl)-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)

PAGE 1-A



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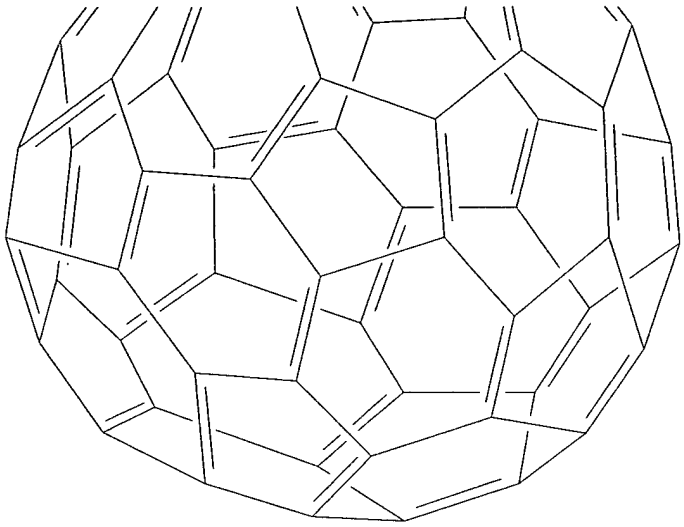


REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

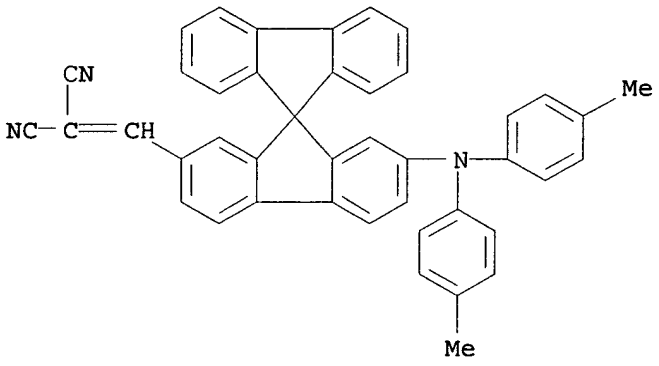
L6 ANSWER 14 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:239950 CAPLUS
DOCUMENT NUMBER: 143:459708
TITLE: Red-emitting fluorenes as efficient emitting hosts for non-doped, organic red-light-emitting diodes
AUTHOR(S): Chiang, Chih-Long; Wu, Min-Fei; Dai, De-Chang; Wen, Yuh-Sheng; Wang, Juen-Kai; Chen, Chin-Ti
CORPORATE SOURCE: Institute of Chemistry, Academia Sinica, Taipei, 11529, Taiwan
SOURCE: Advanced Functional Materials (2005), 15(2), 231-238
CODEN: AFMDC6; ISSN: 1616-301X
PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Rare red-fluorescent fluorene derivs. were designed and synthesized. The long-wavelength red fluorescence is achieved by incorporating a di(4-tolyl)amino or diphenylamino electron donor and a dicyanovinyl electron acceptor. The single-crystal x-ray structures of the di(4-tolyl)amino (pTSPDCV) and diphenylamino (PhSPDCV) compds. indicate only weak non-π van der Waals contacts in addition to long-distance dipole-dipole interactions of the red-emitting fluorene mols. in the solid state. The aggregation of the dipolar fluorene is largely suppressed by introducing bulky 9,9-substituents (spiro-fused bifluorene) as well as a nonplanar di(4-tolyl)amino or diphenylamino group. In the solid state, these fluorene derivs. all show red fluorescence that is much brighter than with the red dopants Nile Red and DCM (4-(dicyanomethylene)-2-methyl-6-[4-(dimethylaminostyryl)-4H-pyran]). The unique photophys. properties of red-emitting fluorene derivs. differ from other known red dopants and facilitate the fabrication of nondoped red organic light-emitting diodes (OLEDs). Authentic red (CIE, x = 0.65, yr = 0.35) electroluminescence with a brightness of >12000 cd m-2 (greater than 600 cd m-2 at 20 mA cm-2) and a remarkable external quantum efficiency ≤3.6% were observed for

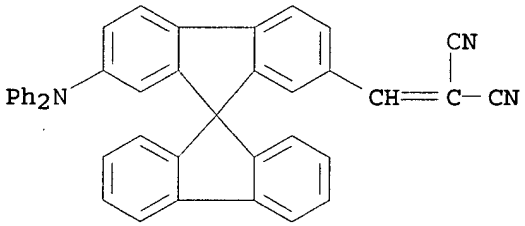
the red-emitting OLEDs with pTSPDCV or PhSPDCV as the sole emitting host.

IT **869299-85-4P 869299-86-5P**
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(crystallog. and red fluorescence; red-emitting fluorenes as efficient emitting hosts for non-doped, organic red-light-emitting diodes)

RN 869299-85-4 CAPLUS
CN Propanedinitrile, [[7-[bis(4-methylphenyl)amino]-9,9'-spirobi[9H-fluoren]-2-yl]methylene]- (9CI) (CA INDEX NAME)

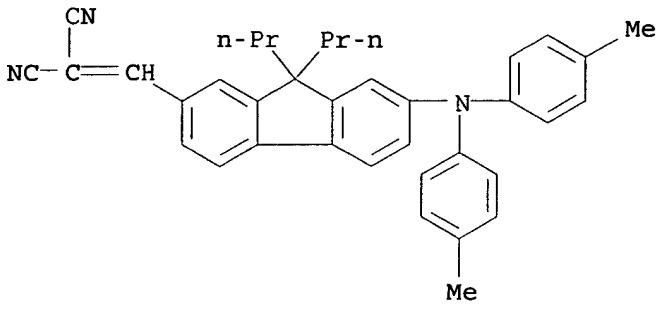


RN 869299-86-5 CAPLUS
CN Propanedinitrile, [[7-(diphenylamino)-9,9'-spirobi[9H-fluoren]-2-yl]methylene]- (9CI) (CA INDEX NAME)

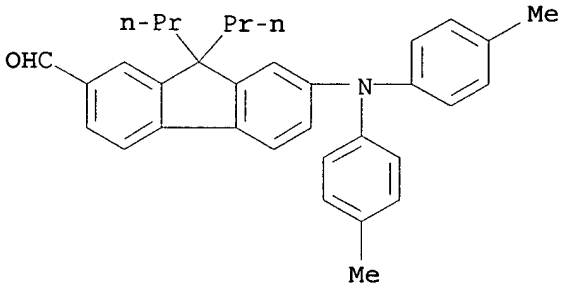


IT **869299-84-3P**
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(red fluorescence; red-emitting fluorenes as efficient emitting hosts for non-doped, organic red-light-emitting diodes)

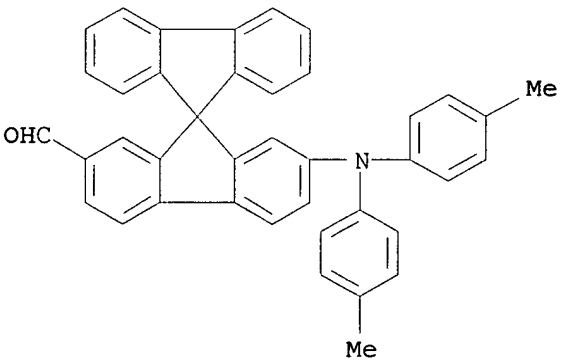
RN 869299-84-3 CAPLUS
CN Propanedinitrile, [[7-[bis(4-methylphenyl)amino]-9,9-dipropyl-9H-fluoren-2-yl]methylene]- (9CI) (CA INDEX NAME)



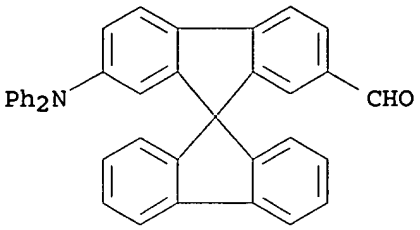
IT **869299-87-6P 869299-88-7P 869299-89-8P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(red-emitting fluorenes as efficient emitting hosts for non-doped, organic red-light-emitting diodes)
RN 869299-87-6 CAPLUS
CN 9H-Fluorene-2-carboxaldehyde, 7-[bis(4-methylphenyl)amino]-9,9-dipropyl- (9CI) (CA INDEX NAME)



RN 869299-88-7 CAPLUS
CN 9,9'-Spirobi[9H-fluorene]-2-carboxaldehyde, 7-[bis(4-methylphenyl)amino]- (9CI) (CA INDEX NAME)



RN 869299-89-8 CAPLUS
CN 9,9'-Spirobi[9H-fluorene]-2-carboxaldehyde, 7-(diphenylamino)- (9CI) (CA INDEX NAME)



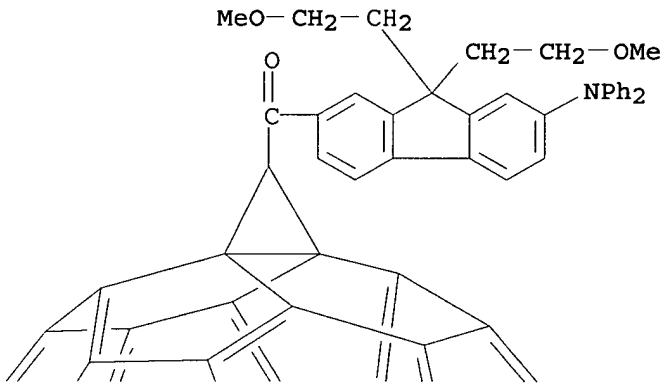
REFERENCE COUNT: 47 THERE ARE 47 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 15 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:224493 CAPLUS
DOCUMENT NUMBER: 142:454178
TITLE: Self-Assembled Photoresponsive Amphiphilic Diphenylaminofluorene-C60 Conjugate Vesicles in Aqueous Solution
AUTHOR(S): Verma, Sarika; Hauck, Tanya; El-Khouly, Mohamed E.; Padmawar, Prashant A.; Canteenwala, Taizoon; Pritzker, Kenneth; Ito, Osamu; Chiang, Long Y.
CORPORATE SOURCE: Department of Chemistry, Institute of Nanoscience and Engineering, University of Massachusetts, Lowell, MA, 01854, USA
SOURCE: Langmuir (2005), 21(8), 3267-3272
CODEN: LANGD5; ISSN: 0743-7463
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

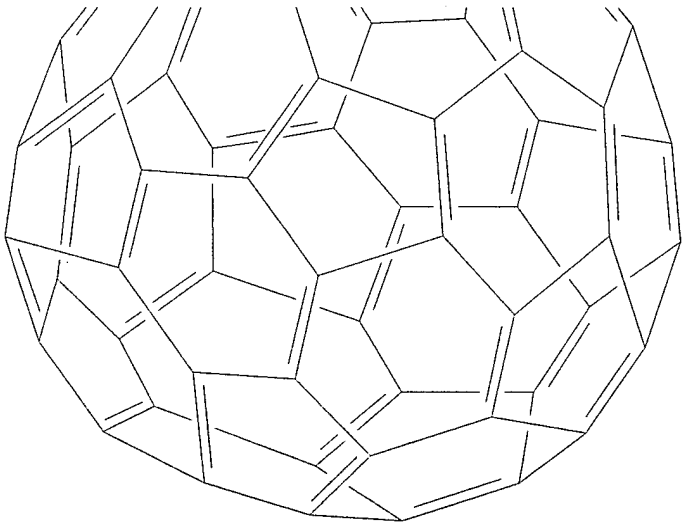
AB Water-soluble oligo(ethylene glycolated) derivs. of two-photon absorptive diphenylaminofluorenocarbonyl-methano[60]fullerene, denoted as C60(> DPAF-EG6), were synthesized with their mol. self-assembly characteristics in H2O studied. The formation of nano- to submicron-sized spherical hollow vesicles with a shell width of 15-20 nm was observed by transmission electron microscopy (TEM) micrographs. This shell width fits approx. with the length of a disordered bilayer-like mol. packing of C60(> DPAF-EG6), arising from strong intermol. hydrophobic interactions of fullerene cages. Photoinduced intramol. charge separation followed by charge recombination on the nanosecond time scale, from the DPAF moiety to the C60 cage in the vesicle structure, was detected via transient spectroscopic measurements. Electronic supplementary information (ESI) is available at http://pubs.acs.org and contains NMR spectra and IR spectra and TGA profiles of DPAF-EG6 and its precursor compds.

IT **649724-49-2**
RL: RCT (Reactant); RACT (Reactant or reagent)
(demethylation with BBr3 in presence of NaI and 15-crown-5)
RN 649724-49-2 CAPLUS
CN Methanone, 3'H-cyclopropa[1,9][5,6]fulleren-C60-Ih-3'-yl[7-(diphenylamino)-9,9-bis(2-methoxyethyl)-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)

PAGE 1-A

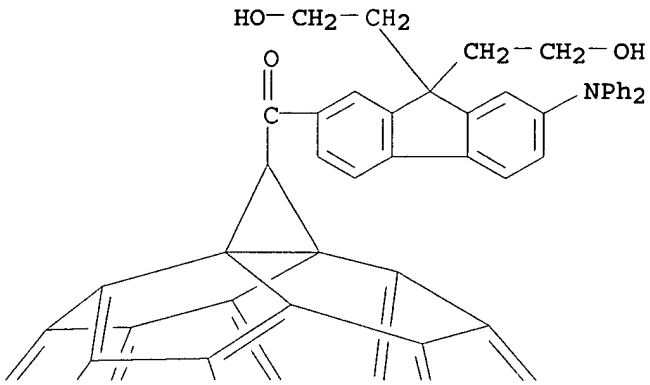


PAGE 2-A

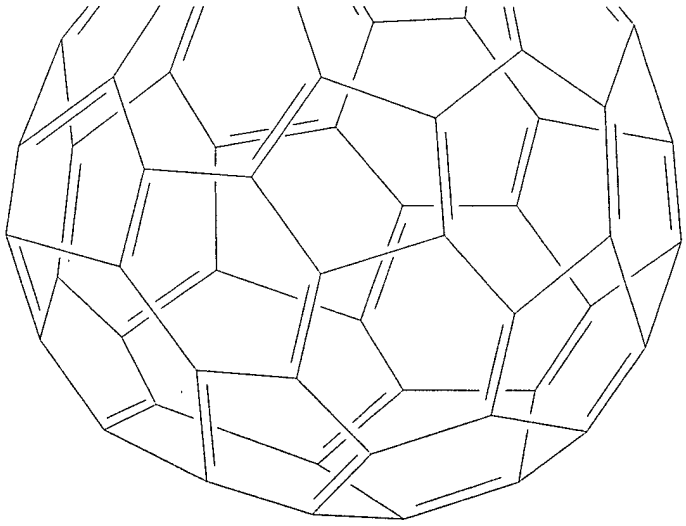


IT **649724-50-5P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(esterification with oligo(ethylene glycol)-bis(carboxymethyl)ether)
RN 649724-50-5 CAPLUS
CN Methanone, 3'H-cyclopropa[1,9][5,6]fulleren-C60-Ih-3'-yl[7-(diphenylamino)-9,9-bis(2-hydroxyethyl)-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



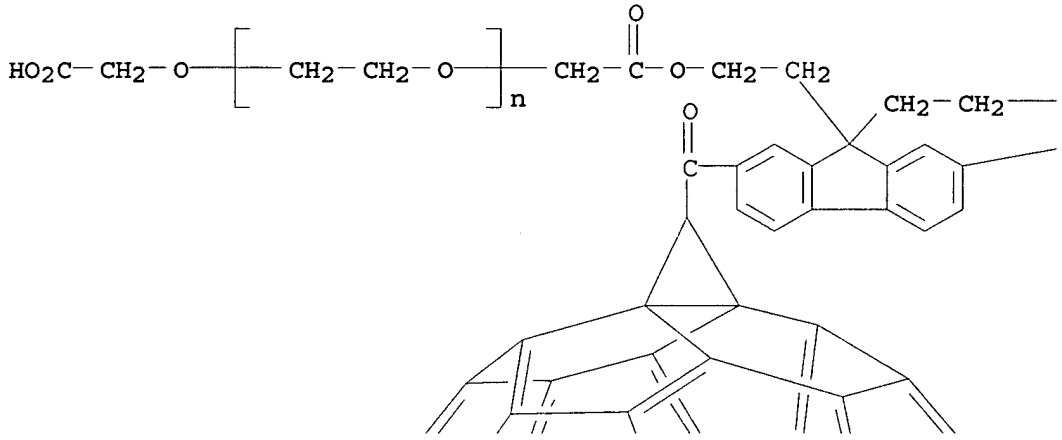
IT **851204-04-1P**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(photophys. of oligo(ethylene glycolated) derivs. of two-photon absorbing diphenylaminofluorenocarbonyl-methano[60]fullerene in vesicle

structure)

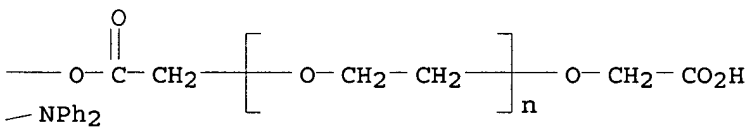
RN 851204-04-1 CAPLUS

CN Poly(oxy-1,2-ethanediyl), α,α'-[[2-(3'H-cyclopropa[1,9][5,6]fullerene-C60-Ih-3'-ylcarbonyl)-7-(dipropylamino)-9H-fluoren-9-ylidene]bis[2,1-ethanediyloxy(2-oxo-2,1-ethanediyl)]]bis[ω-(carboxymethoxy)- (9CI) (CA INDEX NAME)

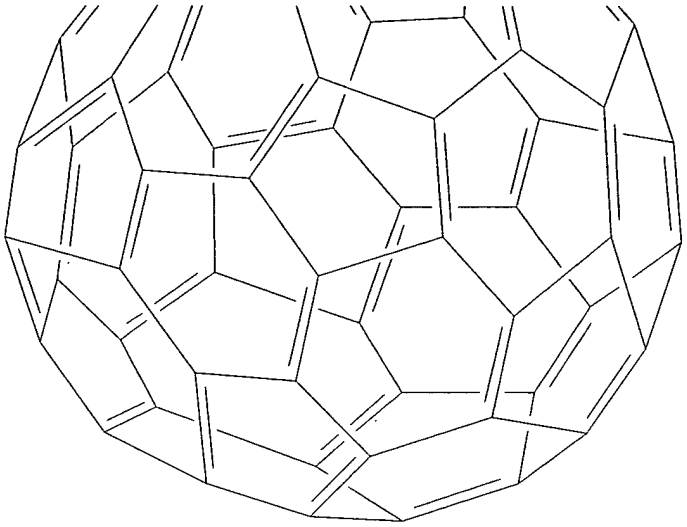
PAGE 1-A



PAGE 1-B



PAGE 2-A



REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

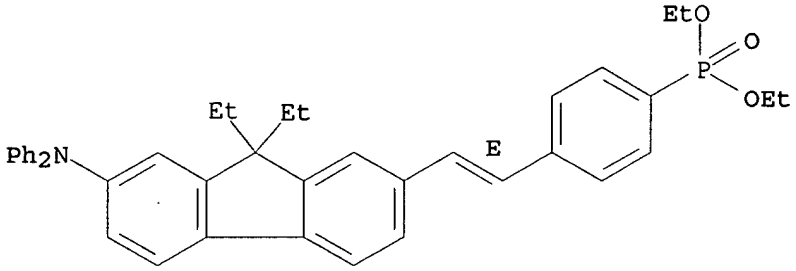
L6 ANSWER 16 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:127098 CAPLUS
DOCUMENT NUMBER: 143:468290
TITLE: One- and Two-Photon Fluorescence Anisotropy of Selected Fluorene Derivatives
AUTHOR(S): Belfield, K. D.; Bondar, M. V.; Hales, J. M.; Morales, A. R.; Przhonska, O. V.; Schafer, K. J.
CORPORATE SOURCE: Department of Chemistry, University of Central Florida, Orlando, FL, USA
SOURCE: Journal of Fluorescence (2005), 15(1), 3-11
CODEN: JOFLEN; ISSN: 1053-0509
PUBLISHER: Springer
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The steady-state excitation anisotropy spectra of fluorene derivs. were measured in viscous solvents, under the one- and two-photon excitation, over a broad spectral range (UV-Visible). The orientation of their absorption transition moments for the first, S0 → S1, and second, S0 → S2, excited states were determined It was shown exptl. that a decrease in the angle between S0 → S1and S0 → S2 transitions corresponded to an increased value of two-photon absorption (2PA) cross section for these mols. Two-photon excitation anisotropy was nearly constant over the spectral region investigated (in contrast to one-photon excitation anisotropy spectra) and can be roughly explained by a simple model of 2PA based on the single intermediate state approximation For comparison, the same trend in two-photon excitation anisotropy was observed for Rhodamine B in glycerol.

IT **252000-05-8**
RL: PRP (Properties)
(one- and two-photon fluorescence anisotropy of selected fluorene derivs.)

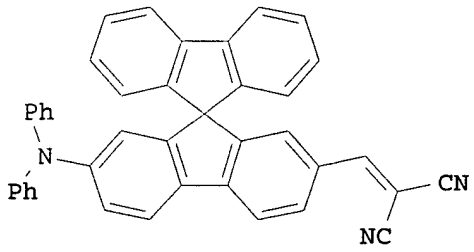
RN 252000-05-8 CAPLUS
CN Phosphonic acid, [4-[(1E)-2-[7-(diphenylamino)-9,9-diethyl-9H-fluoren-2-yl]ethenyl]phenyl]-, diethyl ester (9CI) (CA INDEX NAME)

Double bond geometry as shown.

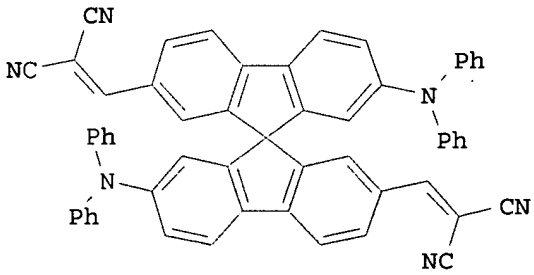


REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 17 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:114653 CAPLUS
DOCUMENT NUMBER: 144:36070
TITLE: Red fluorenes as the efficient host emitter for non-doped red organic light-emitting diodes
AUTHOR(S): Chiang, Chih-Long; Wu, Min-Fei; Shu, Ching-Fong; Chen, Chin-Ti
CORPORATE SOURCE: Department of the Applied Chemistry, National Chiao Tung Univ., Hsinchu, 30035, Taiwan
SOURCE: Proceedings of SPIE-The International Society for Optical Engineering (2005), 5632(Light-Emitting Diode Materials and Devices), 80-87
CODEN: PSISDG; ISSN: 0277-786X
PUBLISHER: SPIE-The International Society for Optical Engineering
DOCUMENT TYPE: Journal
LANGUAGE: English
GI



I

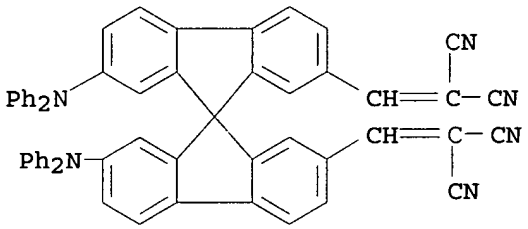


II

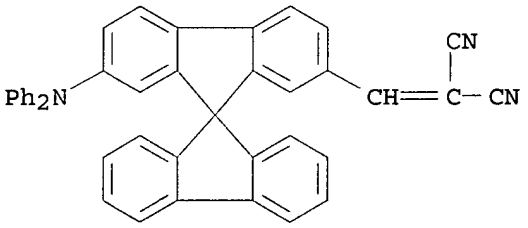
AB Crystal red fluorophores based on donor-acceptor substituted spirofluorene, i.e., I show strong fluorescence in solution (Φf.apprx.70%) as well as in solid state (Φf > 30%). Non-doped red OLEDs fabricated with I exhibit authentic red (CIE, x = 0.65, yr = 0.35) electroluminescence with brightness over 12,000 cd m-2 (or > 600 cd m-2 at 20 mA cm-2) and remarkable external quantum efficiency as high as 3.6%. On the other hand, the bis-substituted derivs. of spirofluorene II show relatively weak fluorescence both in solution (Φf < 20%) and in solid state (Φf < 10%). Although saturated red electroluminescence (CIE, x = 0.65, yr = 0.34) is also observed, non-doped red OLED containing II performs much worse than I OLEDs. Both PhSPDCV and BisPhSPDCV are not amorphous forming loosely packed crystal materials in solid state with no intimate π-π interaction.

IT **864957-79-9P 869299-86-5P**
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(preparation of red fluorenes as efficient host emitter for non-doped red organic light-emitting diodes)

RN 864957-79-9 CAPLUS
CN Propanedinitrile, 2,2'-[[7,7'-bis(diphenylamino)-9,9'-spirobi[9H-fluorene]-2,2'-diyl]dimethylidyne]bis- (9CI) (CA INDEX NAME)

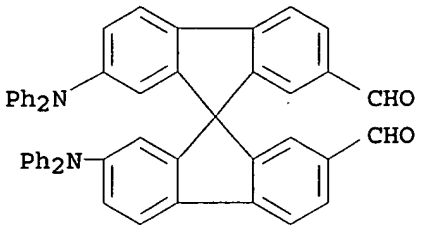


RN 869299-86-5 CAPLUS
CN Propanedinitrile, [[7-(diphenylamino)-9,9'-spirobi[9H-fluoren]-2-yl]methylene]- (9CI) (CA INDEX NAME)

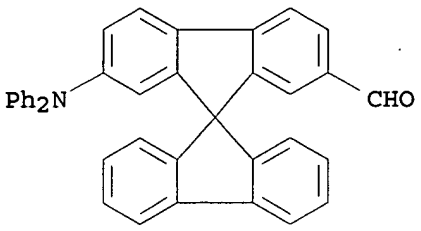


IT **864957-76-6P 869299-89-8P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of red fluorenes as efficient host emitter for non-doped red organic light-emitting diodes)

RN 864957-76-6 CAPLUS
CN 9,9'-Spirobi[9H-fluorene]-2,2'-dicarboxaldehyde, 7,7'-bis(diphenylamino)- (9CI) (CA INDEX NAME)



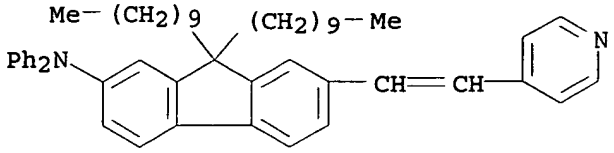
RN 869299-89-8 CAPLUS
CN 9,9'-Spirobi[9H-fluorene]-2-carboxaldehyde, 7-(diphenylamino)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

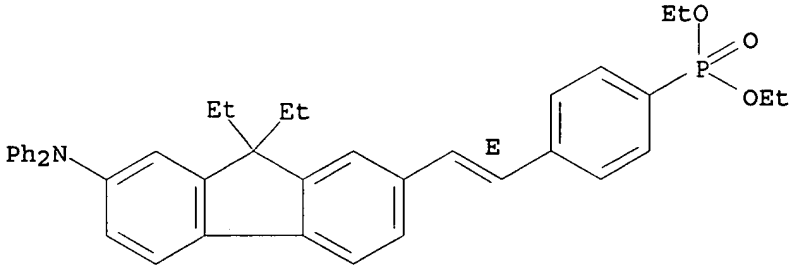
L6 ANSWER 18 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:45072 CAPLUS
DOCUMENT NUMBER: 142:305594
TITLE: TDDFT Study of One- and Two-Photon Absorption Properties: Donor-π-Acceptor Chromophores
AUTHOR(S): Day, Paul N.; Nguyen, Kiet A.; Pachter, Ruth
CORPORATE SOURCE: Materials and Manufacturing Directorate, Air Force Research Laboratory, Wright Patterson Air Force Base, OH, 45433, USA
SOURCE: Journal of Physical Chemistry B (2005), 109(5), 1803-1814
CODEN: JPCBFK; ISSN: 1520-6106
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB We report a comprehensive time-dependent d. functional theory (TDDFT) study of one-photon and two-photon absorption (OPA and TPA, resp.) spectra for donor-π-acceptor mols. The calculated excitation energies were generally shown to be in good agreement with experiment, particularly when compared to results from measurements carried out in a nonpolar solvent, although the oscillator strengths were overestimated in some cases. Calculated TPA cross sections applying the two-state approximation were shown to be highly dependent on the form of the line-shape function used. Although a good agreement with exptl. TPA spectra was generally observed, the wide range in the exptl. measured values and lack of systematic exptl. data on solvent effects limited a detailed comparison as yet.
IT **191667-13-7 252000-05-8**
RL: PRP (Properties)
(TDDFT study of one- and two-photon absorption of donor-π-acceptor chromophores)
RN 191667-13-7 CAPLUS

CN 9H-Fluoren-2-amine, 9,9-didecyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]-
(9CI) (CA INDEX NAME)



RN 252000-05-8 CAPLUS
CN Phosphonic acid, [4-[(1E)-2-[7-(diphenylamino)-9,9-diethyl-9H-fluoren-2-yl]ethenyl]phenyl]-, diethyl ester (9CI) (CA INDEX NAME)

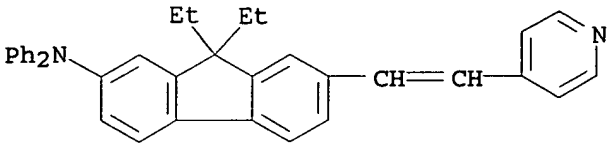
Double bond geometry as shown.



REFERENCE COUNT: 104 THERE ARE 104 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 19 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:3217 CAPLUS
DOCUMENT NUMBER: 143:294805
TITLE: Substituent effect on two-photon absorption properties of fluorene derivatives
AUTHOR(S): Kawamata, Jun; Akiba, Masaharu; Inagaki, Yoshio; Tani, Takeharu; Harada, Akinori
CORPORATE SOURCE: Department of Chemistry, Faculty of Science, Yamaguchi University, Yamaguchi, 753-8512, Japan
SOURCE: Journal of Nonlinear Optical Physics & Materials (2004), 13(3 & 4), 475-479
CODEN: JNOMFV; ISSN: 0218-8635
PUBLISHER: World Scientific Publishing Co. Pte. Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Two novel fluorene derivs. having cationic substituents were synthesized. Two-photon absorption (TPA) properties of the derivs. were evaluated using the fluorescence-based technique with a femtosecond pulse emitted from a Ti:sapphire laser. Maximum TPA cross sections of the compds. were estimated from the TPA spectra. Based on the results, the relation between the TPA cross sections and the substituent effects of the derivs. are discussed.
IT **197969-56-5 437713-15-0**
RL: PRP (Properties)
(substituent effect on two-photon absorption properties of fluorene derivs.)
RN 197969-56-5 CAPLUS
CN 9H-Fluoren-2-amine, 9,9-diethyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]-

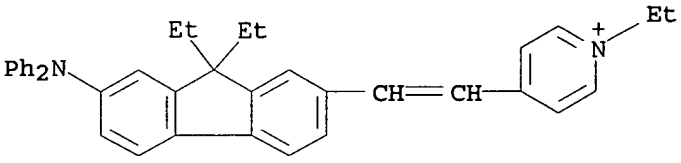
(9CI) (CA INDEX NAME)



RN 437713-15-0 CAPLUS
CN Pyridinium, 4-[2-[7-(diphenylamino)-9,9-diethyl-9H-fluoren-2-yl]ethenyl]-1-ethyl-, perchlorate (9CI) (CA INDEX NAME)

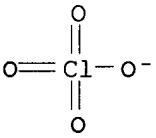
CM 1

CRN 437713-14-9
CMF C38 H37 N2



CM 2

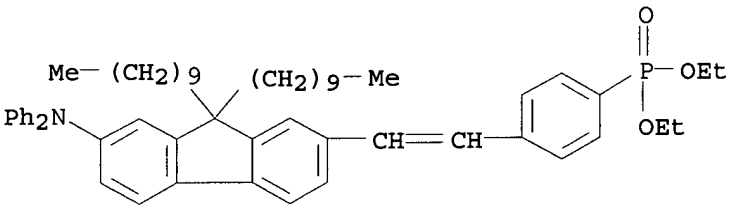
CRN 14797-73-0
CMF Cl O4



REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 20 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:1149754 CAPLUS
DOCUMENT NUMBER: 143:237948
TITLE: Nonlinear transmission and excited-state absorption in fluorene derivatives
AUTHOR(S): Belfield, Kevin D.; Bondar, Mykhailo V.; Hernandez, Florencio E.; Morales, Alma R.; Przhonska, Olga V.; Schafer, Katherine J.
CORPORATE SOURCE: Department of Chemistry and College of Optics and Lasers and the Florida Photonics Center of Excellence, University of Central Florida, Orlando, FL, 32816-2366, USA
SOURCE: Applied Optics (2004), 43(34), 6339-6343
CODEN: APOPAI; ISSN: 0003-6935
PUBLISHER: Optical Society of America

DOCUMENT TYPE: Journal
LANGUAGE: English
AB The nonlinear transmission and the excited-state absorption spectra of 3 fluorene derivs. exhibiting large 2-photon absorptivity were measured by the 3rd harmonic of a picosecond Nd:YAG laser. We analyzed their capability for exhibiting stimulated emission in polar solvents and found that asym. fluorene compds. with a diphenylamino substituent exhibited large Stokes shifts (.apprx.8000 cm-1), high quantum yields (.apprx.0.9-1.0), and no optical gain over their entire fluorescence spectral region. In contrast, a sym. fluorene derivative with vinylphenylbenzothiazole substituents in positions 2 and 7 underwent lasing under 1-photon excitation by use of picosecond pulsed irradiation
IT **507271-13-8**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(nonlinear transmission and excited-state absorption in fluorene derivs.)
RN 507271-13-8 CAPLUS
CN Phosphonic acid, [4-[2-[9,9-didecyl-7-(diphenylamino)-9H-fluoren-2-yl]ethenyl]phenyl]-, diethyl ester (9CI) (CA INDEX NAME)



REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

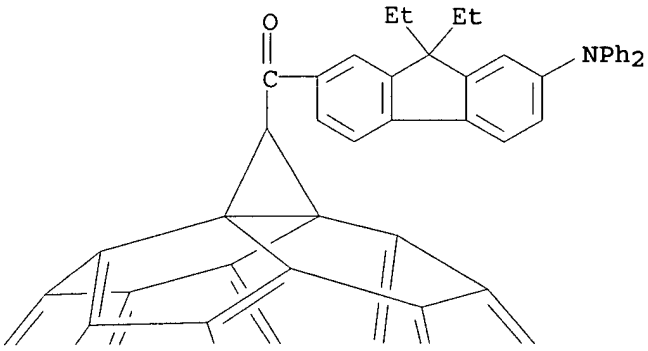
L6 ANSWER 21 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:962266 CAPLUS
DOCUMENT NUMBER: 142:143893
TITLE: Synthesis and Photophysical Properties of C60-Diphenylaminofluorene Dyad and Multiads
AUTHOR(S): Padmawar, Prashant A.; Canteenwala, Taizoon; Verma, Sarika; Tan, Loon-Seng; Chiang, Long Y.
CORPORATE SOURCE: Department of Chemistry, Institute of Nanoscience and Engineering Technology, University of Massachusetts Lowell, Lowell, MA, USA
SOURCE: Journal of Macromolecular Science, Pure and Applied Chemistry (2004), A41(12), 1387-1400
CODEN: JSPCE6; ISSN: 1060-1325
PUBLISHER: Marcel Dekker, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB One mono-adduct and three novel multi-adduct analogs of C60-diphenylaminofluorene C60(>DPAF)n derivs. were synthesized and characterized by various spectroscopic methods. Optical absorption of these samples indicated a systematic increase in relative intensity of the fluorene band centered at 415 nm as the number of DPAF addend increases. Fluorescence of DPAF chromophore in all C60(>DPAF)n derivs. 4 (n = 1), 5 (n = 2), 6 (n = 3), and 7 (n = 4) in o-dichlorobenzene and chloroform was found to be efficiently quenched as the direct covalent bond attachment of DPAF moieties to the fullerene cage facilitates efficient intramol. electron or energy transfer processes.

IT **486998-58-7P**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(dyad; synthesis and material characterization and photophys. properties of fullerene-diphenylaminofluorene dyad and its multi-adduct analogs)

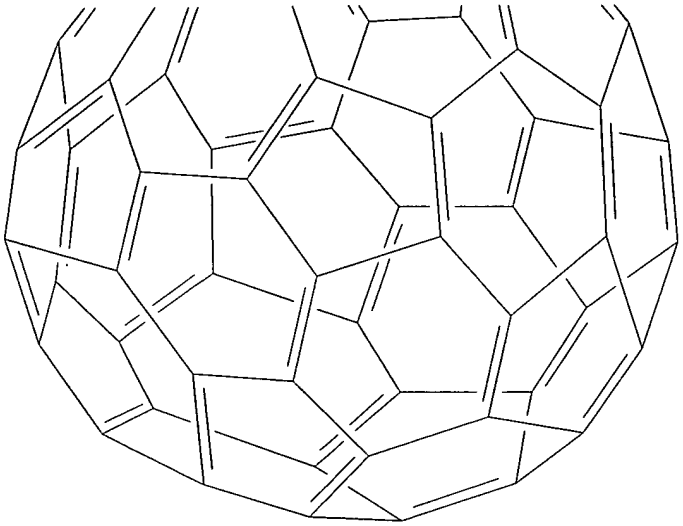
RN 486998-58-7 CAPLUS

CN Methanone, 3'H-cyclopropa[1,9][5,6]fulleren-C60-Ih-3'-yl[7-(diphenylamino)-9,9-diethyl-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)

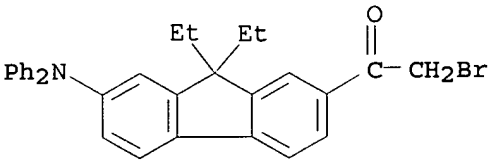
PAGE 1-A



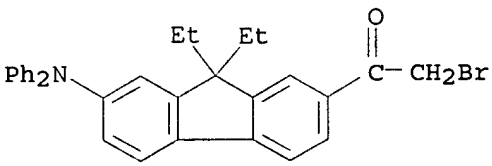
PAGE 2-A



IT **486998-57-6DP**, bis-,tris-, or tetra- cyclopropylated with C60
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(synthesis and material characterization and photophys. properties of fullerene-diphenylaminofluorene dyad and its multi-adduct analogs)
RN 486998-57-6 CAPLUS
CN Ethanone, 2-bromo-1-[7-(diphenylamino)-9,9-diethyl-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)



IT **486998-57-6P**, 7-Bromoacetyl-9,9-Diethyl-2-diphenylaminofluorene
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(synthesis of fullerene-diphenylaminofluorene dyad)
RN 486998-57-6 CAPLUS
CN Ethanone, 2-bromo-1-[7-(diphenylamino)-9,9-diethyl-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)



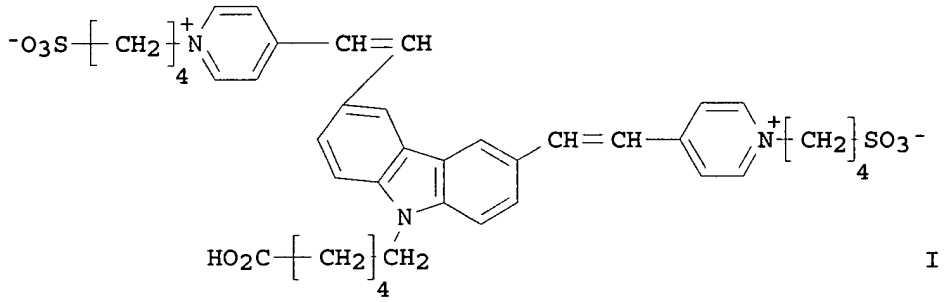
REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 22 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:651328 CAPLUS
DOCUMENT NUMBER: 141:170427
TITLE: Two-photon absorbing compounds and method for fluorescent labeling with the compounds
INVENTOR(S): Inagaki, Yoshio; Takizawa, Hiroo; Akiba, Masaharu
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 14 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004224746	A2	20040812	JP 2003-15683	20030124

PRIORITY APPLN. INFO.: JP 2003-15683 20030124
OTHER SOURCE(S): MARPAT 141:170427
GI

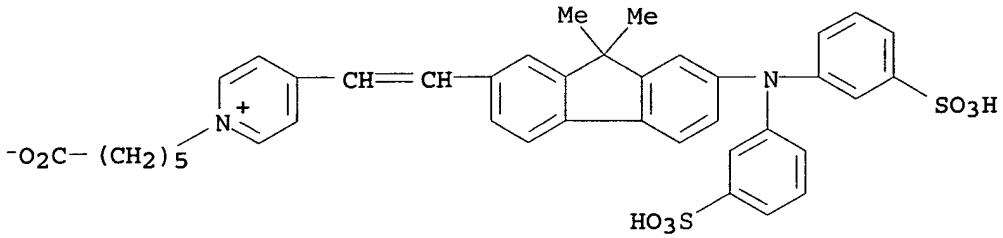


I

AB Substances are labeled by reacting with two-photon absorbing compds. represented by G(L)nA (G = reactive group forming a covalent bond with the substances; L = linking group; A = organic group derived from HA having two-photon absorption cross section of ≥1000 GM; n = 0, 1). Fluorometry using the two-photon absorbing compds. shows large difference between excitation wavelength and fluorescence wavelength, good three-dimensional spatial resolution, and high sensitivity. Two-photon fluorescence ratio of some compds. were given. Thus, an aqueous gelatin solution was treated with a carbazole derivative having 1 CO2H and 2 SO3- groups (represented by I) and irradiated with 780-nm laser in the dark to generate bluish-green fluorescence only near the focal point.

IT **733805-44-2**
RL: ARG (Analytical reagent use); PRP (Properties); ANST (Analytical study); USES (Uses)
(two-photon absorbing compds. and method for two-photon fluorescent labeling with the compds.)

RN 733805-44-2 CAPLUS
CN Pyridinium, 4-[2-[7-[bis(3-sulfophenyl)amino]-9,9-dimethyl-9H-fluoren-2-yl]ethenyl]-1-(5-carboxypentyl)-, inner salt, dipotassium salt (9CI) (CA INDEX NAME)

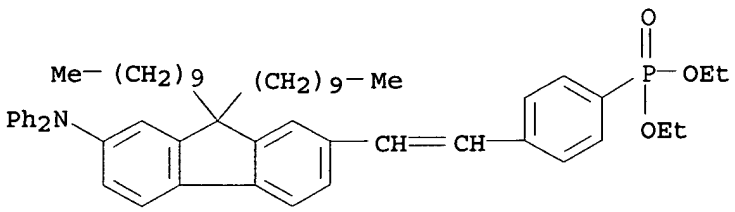


●2 K

L6 ANSWER 23 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:646022 CAPLUS
DOCUMENT NUMBER: 142:214531
TITLE: Spectroscopic studies of the interaction between DNA and fluorene dyes
AUTHOR(S): Przonska, O. V.; Bondar, M. V.; Dovbeshko, G. I.; Repnytska, O. P.; Lukashenko, V. I.; Tryndiak, V. P.; Todor, I. N.; Belfield, K. D.
CORPORATE SOURCE: Institute of Physics, Nat. Acad. Sci. of Ukraine, Kiev, 02028, Ukraine
SOURCE: Ukrains'kii Fizichnii Zhurnal (2004), 49(7), 636-647
CODEN: UFZHFY; ISSN: 0372-400X
PUBLISHER: Natsional'na Akademiya Nauk Ukraini, Viddilennya Fiziki i Astronomii
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Making use of electron spectroscopy (absorption and fluorescence) and IR vibrational spectroscopy methods, the interaction of the DNA taken from the normal and tumor (the yield strain of the Guerin carcinoma) tissues of rats of the Vistar line with two types of fluorene dyes, namely, (7-benzothiazol-2-yl-9,9-didecylfluoren-2-yl) diphenylamine (FD1) and {4-[2-(7-diphenylamino-9,9-diethylfluoren-2-yl)vinyl]phenyl} of the di-Et ester of phosphoric acid (FD2), has been investigated. The addition of the dyes to the tumor DNA in the in vivo experiment has been shown to disrupt the DNA secondary structure and to induce the transition into a partially unpaired form. In the IR experiment, different linkages of both dyes with the sugar-phosphate DNA frame have been detected, but it did not result in the features of the fluorescence spectra in the FD1 case. The fluorescence spectra of the FD2 interacting with the reference DNA show two bands, in contrast to what is measured at the interaction with the tumor DNA. The appearance of the short-wave band may be stipulated by an essential reconstruction in the part of the dye mols. due to their interaction with DNA ones. Exptl. results evidence for that the dyes link more efficiently to the reference DNA than to the tumor one, and that the FD2 dye with a strong acceptor group reveals an enhanced activity during the interaction. The in vivo experiment shows that addnl. sites appear in the dyes for their linkage with DNA.

IT **507271-13-8**
RL: PRP (Properties)
(spectroscopic studies of interaction between DNA and fluorene dyes)
RN 507271-13-8 CAPLUS
CN Phosphonic acid, [4-[2-[9,9-didecyl-7-(diphenylamino)-9H-fluoren-2-yl]ethenyl]phenyl]-, diethyl ester (9CI) (CA INDEX NAME)



L6 ANSWER 24 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:587037 CAPLUS
DOCUMENT NUMBER: 141:131068
TITLE: Electroluminescent compositions, and their organic electroluminescent devices emitting light from green to yellow
INVENTOR(S): Onikubo, Shunichi; Yauchi, Hiroyuki; Yagi, Tamao; Kaneko, Tetsuya; Tanaka, Hiroaki; Takada, Yasuyuki
PATENT ASSIGNEE(S): Toyo Ink Mfg. Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 67 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

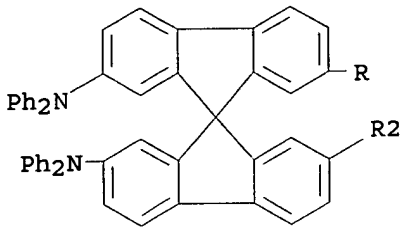
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004206893	A2	20040722	JP 2002-371262	20021224

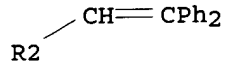
PRIORITY APPLN. INFO.: JP 2002-371262 20021224

AB The compns. contain (A) compds. having peaks at 475-600 nm in fluorescent spectra of their solid films and (B) compds. showing the sum of areas (intensities) ≤20% at ≤500 nm and ≥600 nm, or at ≥500 nm based on total areas (intensities) at 400-800 nm in fluorescent spectrum of solid films comprising A and 5% B. Organic electroluminescent devices having emitter layers containing the compns. containing 1:0.1 perylene derivative and diketopyrrolopyrrole derivative showed high luminescence intensity and good durability in repeated use.

IT **724789-65-5**
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(host; electroluminescent compns. for organic electroluminescent devices showing high luminescence intensity and durability in repeated use)

RN 724789-65-5 CAPLUS
CN 9,9'-Spirobi[9H-fluorene]-2,2'-diamine, 7,7'-bis(2,2-diphenylethenyl)-N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)



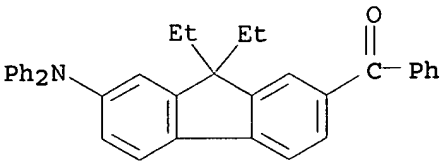


L6 ANSWER 25 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:577508 CAPLUS
DOCUMENT NUMBER: 141:267426
TITLE: Few-states models for three-photon absorption
AUTHOR(S): Cronstrand, Peter; Norman, Patrick; Luo, Yi; Agren, Hans
CORPORATE SOURCE: Theoretical Chemistry, SCFAB, Royal Institute of Technology, Stockholm, SE-106 91, Swed.
SOURCE: Journal of Chemical Physics (2004), 121(5), 2020-2029
CODEN: JCPSA6; ISSN: 0021-9606
PUBLISHER: American Institute of Physics
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Few-states models are derived for the calcn. of three-photon absorption matrix elements. Together with earlier derived few-states models for two-photon absorption, the models are evaluated against results from response theory calcns. that provide the full sum-over-states values. It is demonstrated that not even for systems with charge-transfer character, where few-states models for two-photon absorption are in excellent agreement with response theory, do the models provide a quant. correct description for three-photon absorption. The convergence behavior, merits, and shortcomings of the models are elucidated in some detail. The role of various characteristics of the electronic structure, such as symmetry, charge transfer, and conjugation-important for the formation of a large three-photon cross section-is analyzed. As for two-photon absorption cross sections, it is essential to consider generalized few-states models also for three-photon absorption, i.e., to account for dipolar directions and laser beam polarization. Despite their poor quant. performance, it is argued that few-states models at times can be useful for interpretation purposes when applied to three-photon absorption.

IT **349123-45-1**
RL: PRP (Properties)
(few-states models for three-photon absorption in)

RN 349123-45-1 CAPLUS
CN Methanone, [7-(diphenylamino)-9,9-diethyl-9H-fluoren-2-yl]phenyl- (9CI) (CA INDEX NAME)

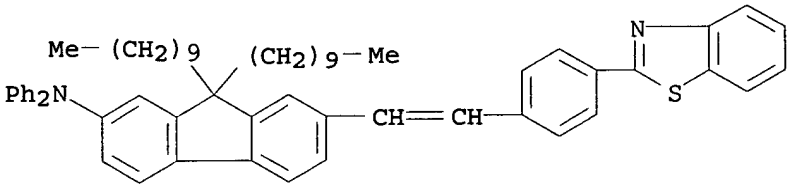


REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 26 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:543643 CAPLUS
DOCUMENT NUMBER: 141:313812
TITLE: Synthesis, Characterization, and Optical Properties of New Two-Photon-Absorbing Fluorene Derivatives
AUTHOR(S): Belfield, Kevin D.; Morales, Alma R.; Kang, Bong-Soo; Hales, Joel M.; Hagan, David J.; Van Stryland, Eric W.; Chapela, Victor M.; Percino, Judith
CORPORATE SOURCE: Department of Chemistry and College of Optics and Photonics: CREOL FPCE, University of Central Florida, Orlando, FL, 32816, USA
SOURCE: Chemistry of Materials (2004), 16(23), 4634-4641
CODEN: CMATEX; ISSN: 0897-4756
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 141:313812

AB The synthesis of a series of four new compds. containing fluorenyl chromophores is presented, along with the results of spectroscopic and photochem. studies aimed at understanding the two-photon absorption properties and energetics of their electronically excited states. The mol. structures of the compds. were systematically varied to allow comparison of mols. possessing high and low mol. symmetry, short and long alkyl chains, and a fluorenyl conjugated π-system. Solvent-dependent absorption and emission were investigated along with π-conjugation length. Preliminary measurements of two-photon absorption (2PA) using a two-photon fluorescence method indicate that these chromophores exhibit high two-photon absorptivity. A sym. mol. (3), possessing a relatively large π-conjugated system, flanked on either side by electron-withdrawing groups (benzothiazole), exhibited a peak 2PA cross section (δ) of 6000 + 10-50 cm4 s photon-1 mol.-1 at 600 nm. Excitation anisotropy studies revealed the position of the S0 → S1 and S0 → S2 electronic transitions. Consistent with quantum mech. selection rules, the two-photon allowed transition (S0 → S2) was dominant.

IT **745079-44-1P**
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (synthesis, characterization, and optical spectra of two-photon-absorbing fluorene derivs.)
RN 745079-44-1 CAPLUS
CN 9H-Fluoren-2-amine, 7-[2-[4-(2-benzothiazolyl)phenyl]ethenyl]-9,9-didecyl-N,N-diphenyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 41 THERE ARE 41 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 27 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:360279 CAPLUS
DOCUMENT NUMBER: 140:392334
TITLE: Two-photon responsive chromophores containing electron accepting core units
INVENTOR(S): Kannan, Ramamurthi; Tan, Loon-seng; Reinhardt, Bruce A.; Vaia, Richard A.
PATENT ASSIGNEE(S): The United States of America as Represented by the Secretary of the Air Force, USA
SOURCE: U.S., 6 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6730793	B1	20040504	US 2002-171566	20020613
PRIORITY APPLN. INFO.:			US 2002-171566	20020613

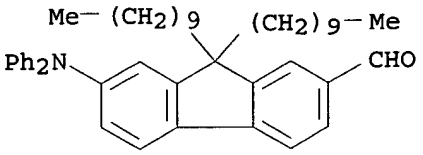
OTHER SOURCE(S): MARPAT 140:392334
GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB Chromophores are described by the general formula Q-(-L-Z)x (x = 2 or 3; Q is selected from I. II, III, IV, V, and VI; L = VII; R = C1-20 alkyl group; and Z = VIII or IX). The chromophores may exhibit high two-photon absorptions. Thus, 2,5-Bis(7-carbazol-9-yl-9,9-didecylfluoren-2-yl)-1,3-thiazolo(5,4d)1,3-thiazole was prepared and exhibited β = 2.8 cm/GW at 0.2 mol/L.

IT **348631-00-5P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(chromophores with high two-photon absorptions)

RN 348631-00-5 CAPLUS
CN 9H-Fluorene-2-carboxaldehyde, 9,9-didecyl-7-(diphenylamino)- (9CI) (CA INDEX NAME)



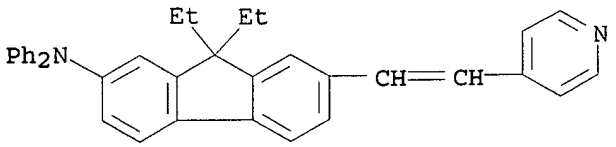
REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 28 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:316280 CAPLUS
DOCUMENT NUMBER: 141:23125
TITLE: Two-photon absorption cross-sections of fluorene derivatives with cationic substituents
AUTHOR(S): Kawamata, Jun; Akiba, Masaharu; Tani, Takeharu; Harada, Akinori; Inagaki, Yoshio
CORPORATE SOURCE: Department of Chemistry and Earth Sciences, Faculty of Science, Yamaguchi University, Yamaguchi, 753-8512, Japan
SOURCE: Chemistry Letters (2004), 33(4), 448-449
CODEN: CMLTAG; ISSN: 0366-7022
PUBLISHER: Chemical Society of Japan
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Two novel fluorene derivs. having cationic substituents were synthesized. Two-photon absorption (TPA) properties of the derivs. were evaluated using the fluorescence-based technique with a femtosecond pulse emitted from a Ti:sapphire laser. Maximum TPA cross-sections of the compds. were estimated from the TPA spectra. TPA cross-sections of compds. with cationic substituents were found to be significantly larger than those of the compds. without cationic substituents.

IT **197969-56-5 437713-15-0**
RL: PRP (Properties)
(two-photon absorption cross-sections of fluorene derivs. with cationic substituents)

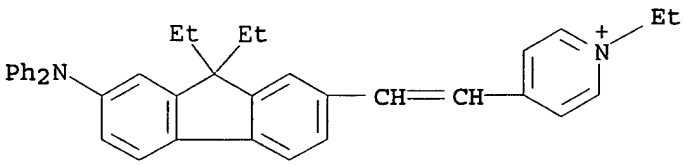
RN 197969-56-5 CAPLUS
CN 9H-Fluoren-2-amine, 9,9-diethyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]- (9CI) (CA INDEX NAME)



RN 437713-15-0 CAPLUS
CN Pyridinium, 4-[2-[7-(diphenylamino)-9,9-diethyl-9H-fluoren-2-yl]ethenyl]-1-ethyl-, perchlorate (9CI) (CA INDEX NAME)

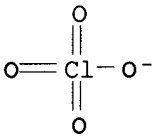
CM 1

CRN 437713-14-9
CMF C38 H37 N2



CM 2

CRN 14797-73-0
CMF Cl O4



REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 29 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:210510 CAPLUS
DOCUMENT NUMBER: 140:414514
TITLE: Degenerate two-photon-absorption spectral studies of highly two-photon active organic chromophores
AUTHOR(S): He, Guang S.; Lin, Tzu-Chau; Dai, Jianming; Prasad, Paras N.; Kannan, Ramamurthi; Dombroskie, Ann G.; Vaia, Richard A.; Tan, Loon-Seng
CORPORATE SOURCE: Photonics and Biophotonics, Institute for Lasers, State University of New York at Buffalo, Buffalo, NY, 14260-3000, USA
SOURCE: Journal of Chemical Physics (2004), 120(11), 5275-5284
CODEN: JCPSA6; ISSN: 0021-9606
PUBLISHER: American Institute of Physics
DOCUMENT TYPE: Journal
LANGUAGE: English

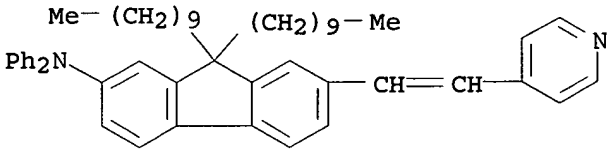
AB Degenerate two-photon absorption (TPA) spectral properties of five AFX chromophore solns. have been studied using a single and spectrally dispersed sub-picosecond white-light continuum beam. In a specially designed optical configuration, optical pathways inside the sample solution for different spectral components of the focused continuum beam were spatially separated from each other. Thus, the nondegenerate TPA processes coming from different spectral components can be eliminated, and the direct nonlinear absorption spectrum attributed to degenerate TPA processes can be readily obtained. Using this new technique, the complete TPA spectra for these five highly two-photon-active compds. (AF-380, AF-350, AF-295, AF-270, and AF-50) were obtained in the spectral range from 600 to 950 nm on an absolute scale of TPA cross section. The relationship between the mol. structures and their TPA spectral behaviors are discussed. In general the measured TPA spectra are not identical with the linear absorption spectra on the scale of absorbed photon(s) energy. Moreover, for some sample (such as AF-380), the TPA spectrum is totally different from the linear spectrum, which implies the difference of mol. transition pathways and selection rules for one- and two-photon excitation

processes. At high excitation intensity levels (≥15 GW/cm2), the saturation behavior of TPA transition can be observed obviously in AF-350 and AF-380 solns. that exhibit much higher nonlinear absorptivity than the other chromophores investigated.

IT **191667-13-7**, AF 50
RL: PRP (Properties)
(degenerate two-photon-absorption spectral studies of highly two-photon active dialkylfluorene-based chromophores)

RN 191667-13-7 CAPLUS

CN 9H-Fluoren-2-amine, 9,9-didecyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]-(9CI) (CA INDEX NAME)



REFERENCE COUNT: 73 THERE ARE 73 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 30 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:165018 CAPLUS

DOCUMENT NUMBER: 141:233070

TITLE: Photostability of a series of two-photon absorbing fluorene derivatives

AUTHOR(S): Belfield, Kevin D.; Bondar, Mykhailo V.; Przhonska, Olga V.; Schafer, Katherine J.

CORPORATE SOURCE: Department of Chemistry and CREOL/School of Optics, University of Central Florida, Orlando, FL, 32816-2366, USA

SOURCE: Journal of Photochemistry and Photobiology, A: Chemistry (2004), 162(2-3), 489-496
CODEN: JPPCEJ; ISSN: 1010-6030

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

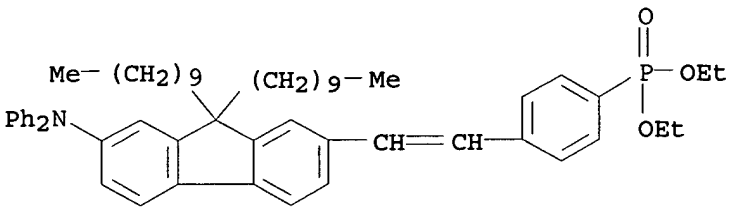
LANGUAGE: English

AB The photochem. stability of a series of two-photon absorbing (TPA) fluorene derivs. was investigated in air- and N2-saturated acetonitrile (ACN) at room temperature The quantum yields of the photoreactions, Φ, were determined at various concns. of the fluorene derivs., oxygen concentration of the solvent, and irradiation wavelength. The absorption and fluorescence spectra of the photoproducts, corresponding to different excitation conditions, were analyzed. Photooxidn. and electron transfer processes are proposed as photobleaching mechanisms for the fluorene derivs. in ACN. The relatively low photochem. quantum yields (Φ .apprx.10-4) make the derivs. particularly promising for linear and nonlinear optical applications.

IT **507271-13-8**
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(photochem. properties of two-photon absorbing fluorene derivs. in acetonitrile solution as function of concentration and oxygen content and irradiation wavelength)

RN 507271-13-8 CAPLUS

CN Phosphonic acid, [4-[2-[9,9-didecyl-7-(diphenylamino)-9H-fluoren-2-yl]ethenyl]phenyl]-, diethyl ester (9CI) (CA INDEX NAME)



REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 31 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:76492 CAPLUS
DOCUMENT NUMBER: 140:136180
TITLE: Amorphous polyphenol derivatives with good heat resistance and organic electroluminescent devices
INVENTOR(S): Fukuoka, Naohiko; Tagami, Sanae; Fujiwara, Toru; Shionoya, Hidehiko
PATENT ASSIGNEE(S): Chemipro Kasei Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 67 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

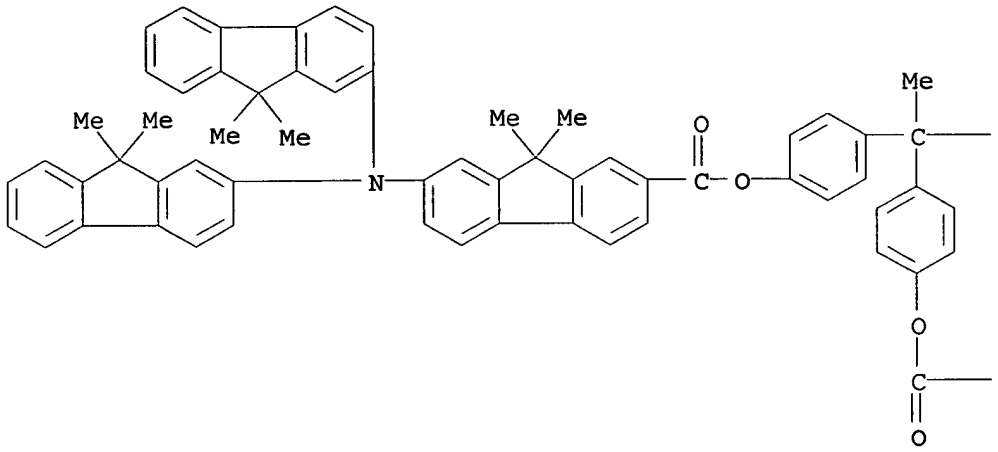
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004026757	A2	20040129	JP 2002-188237	20020627

PRIORITY APPLN. INFO.: JP 2002-188237 20020627
OTHER SOURCE(S): MARPAT 140:136180
GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The derivs. are I [Q = A, B, etc.; R1, R20, R21 = H, (halo)alkyl, cycloalkyl, etc.; R2-R19 = H, halo, (halo)alkyl, etc.; M = C, D; Ar1 = arylene, oxydiaryldiyl; R22 = H, (cyclo)alkyl, aryl; R23-R26 = H, alkyl, alkoxy, aryl; R27-R30 = H, alkyl, alkoxy, aralkyl, etc.; h, m, n = 1-3; j, k, p = 1-4]. Emitter or hole-transport layers of the devices are easily manufactured by solution casting of the derivs. without polymeric binders.
IT **648908-22-9P 648908-23-0P**
RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(heat-resistant amorphous polyphenol derivs. suitable for solution casting for manufacture of organic electroluminescent devices)
RN 648908-22-9 CAPLUS
CN 9H-Fluorene-2-carboxylic acid, 7-[bis(9,9-dimethyl-9H-fluoren-2-yl)amino]-9,9-dimethyl-, ethylidynetri-4,1-phenylene ester (9CI) (CA INDEX NAME)

PAGE 1-A



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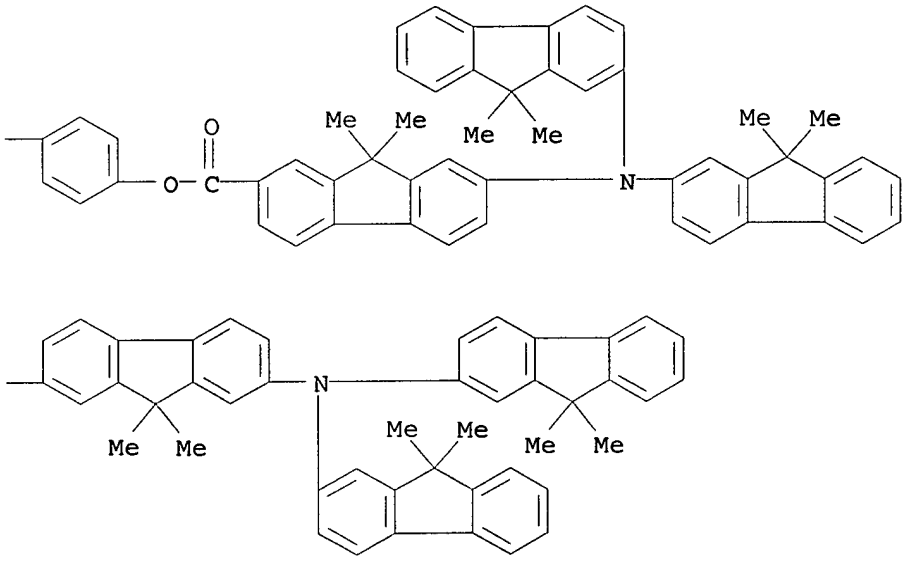
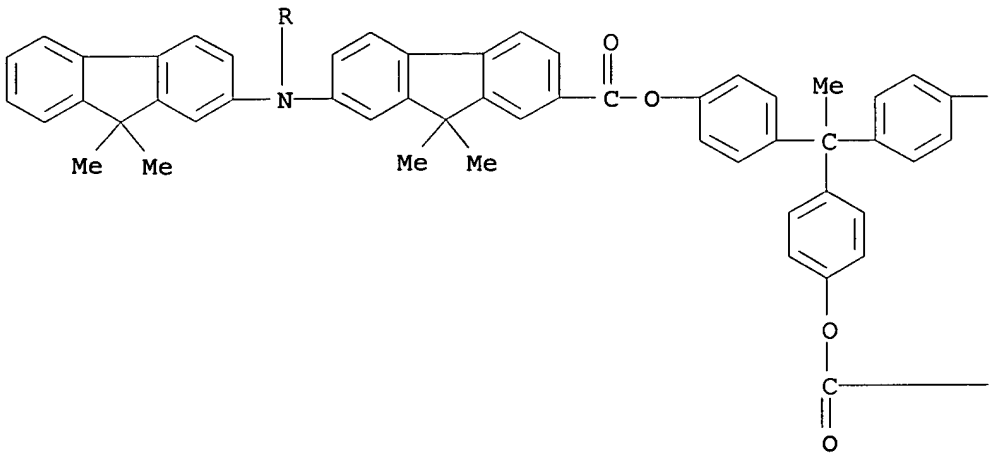


RN 648908-23-0 CAPLUS
CN 9H-Fluorene-2-carboxylic acid, 7-[bis(9,9-dimethyl-9H-fluoren-2-yl)amino]-9,9-dimethyl-, [1-[4-[1-[4-[[[7-[bis(9,9-dimethyl-9H-fluoren-2-yl)amino]-9,9-dimethyl-9H-fluoren-2-yl]carbonyl]oxy]phenyl]-1-methylethyl]phenyl]ethylidene]di-4,1-phenylene ester (9CI) (CA INDEX NAME)

PAGE 1-A



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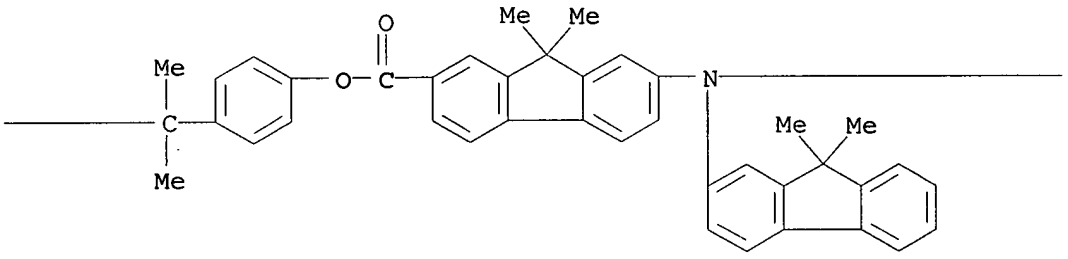

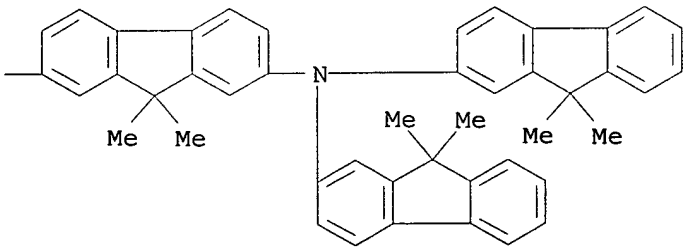

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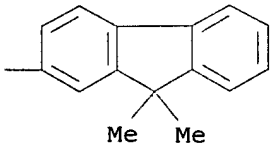
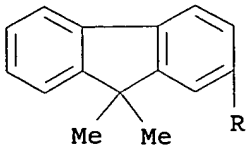
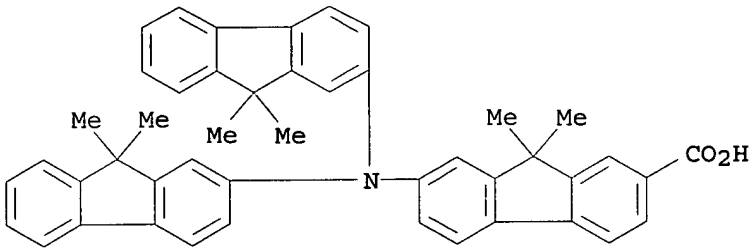


PAGE 2-A



IT **648908-21-8**
RL: RCT (Reactant); RACT (Reactant or reagent)
(heat-resistant amorphous polyphenol derivs. suitable for solution casting for manufacture of organic electroluminescent devices)
RN 648908-21-8 CAPLUS
CN 9H-Fluorene-2-carboxylic acid, 7-[bis(9,9-dimethyl-9H-fluoren-2-yl)amino]-9,9-dimethyl- (9CI) (CA INDEX NAME)



L6 ANSWER 32 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:60449 CAPLUS
DOCUMENT NUMBER: 140:128164
TITLE: Preparation and laser irradiation of fullerene derivatives for generation of singlet oxygen useful for treatment of tumors
INVENTOR(S): Chiang, Long Y.; Tan, Loon-Seng
PATENT ASSIGNEE(S): USA
SOURCE: PCT Int. Appl., 28 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004007426	A1	20040122	WO 2003-US22265	20030716
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2003249294	A1	20040202	AU 2003-249294	20030716

US 2005191229 A1 20050901 US 2003-620839 20030716
PRIORITY APPLN. INFO.: US 2002-396782P P 20020717
WO 2003-US22265 W 20030716
OTHER SOURCE(S): MARPAT 140:128164
GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

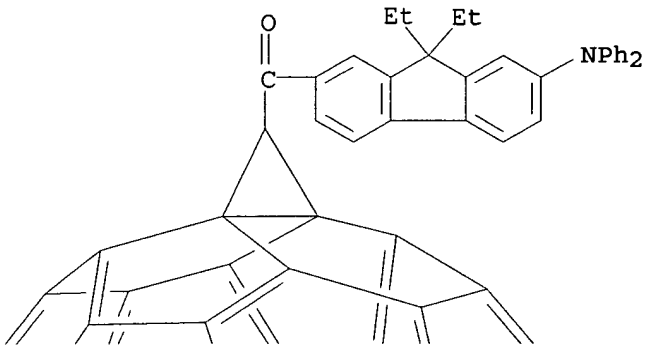
AB The invention relates to fullerene compds. of formula I [wherein: R1, R2 = 3,4-disubstituted phenyl; R3, R4, R5 = (un)substituted aryl(oxy/thio), alkyl, alkylaryl, etc.; V = (hetero)aryl; W = O, C(CN)2, etc.; F = fullerene core; R = OH, NH2; E is represented by wide variety of substituents; p, q = 0-20; n = 1-10], laser irradiation of which generates singlet oxygen, useful for inhibition of tumor growth. Also disclosed are pharmaceutical compns. containing one of the compds. described above. For instance, compound II [X-Y is a 6/6 C-C bond of fullerene C60] was prepared via methoxyethylation of 2-bromofluorene, amination of the obtained 2-bromo-9,9-bis(2-methoxyethyl)fluorene by diphenylamine, and subsequent bromoacetylation by BrCH2C(O)Br, addition of fullerene C60 to the obtained fluorene derivative III, bis-O-demethylation, and etherification by 1,4-butane sultone. In a laser irradiation experiment using another compound I, an unexpectedly large amount of singlet oxygen, and oxygenated radicals generated from fullerene derivs. or composites, were detected. Both in vitro and in vivo studies of I showed inhibition of tumor cell growth (no data).

IT **486998-58-7P**, 7-[1,2-Dihydro-1,2-methano(60)fullerene-61-carbonyl]-9,9-diethyl-2-diphenylaminofluorene **649724-43-6P**
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(intermediate; preparation and laser irradiation of fullerene derivs. for generation of singlet oxygen useful for inhibition of tumor growth)

RN 486998-58-7 CAPLUS

CN Methanone, 3'H-cyclopropa[1,9][5,6]fulleren-C60-Ih-3'-yl[7-(diphenylamino)-9,9-diethyl-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)

PAGE 1-A



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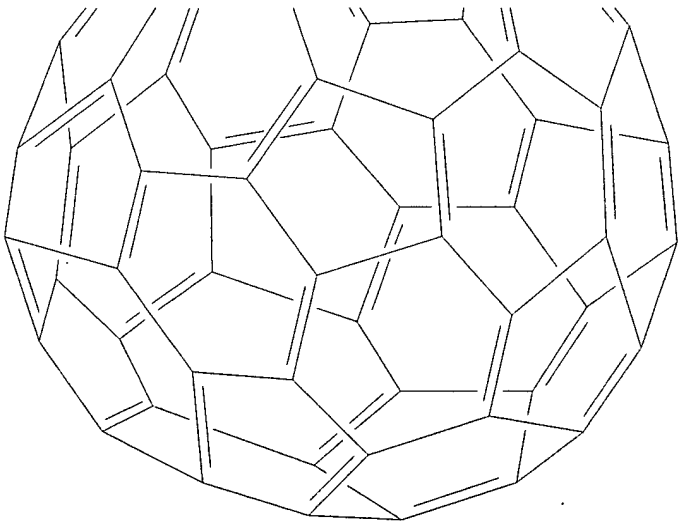
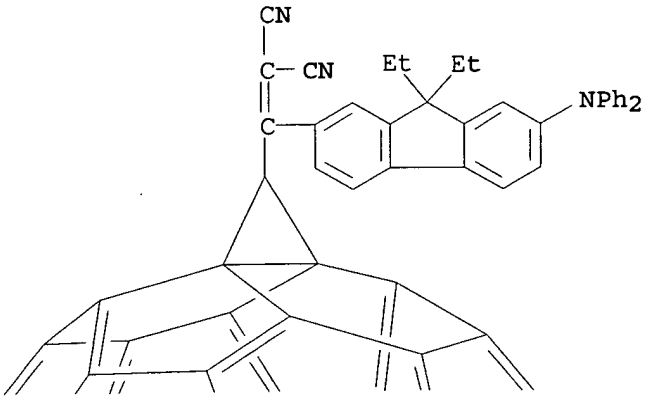


RN 649724-43-6 CAPLUS
CN Propanedinitrile, [3'H-cyclopropa[1,9][5,6]fulleren-C60-Ih-3'-yl[7-(diphenylamino)-9,9-diethyl-9H-fluoren-2-yl]methylene]- (9CI) (CA INDEX NAME)

PAGE 1-A



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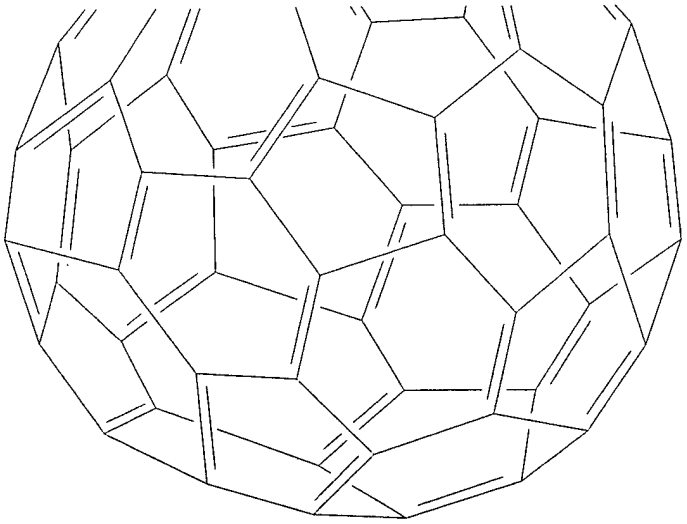
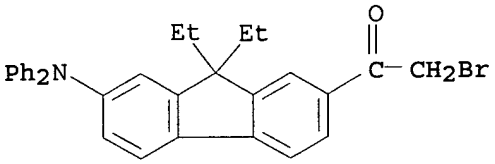


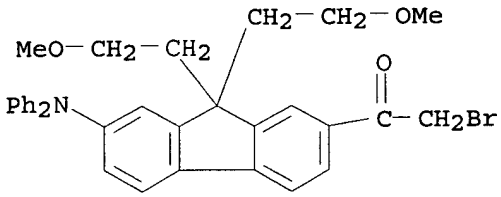
IT **486998-57-6P**, 7-Bromoacetyl-9,9-diethyl-2-diphenylaminofluorene **649724-47-0P**, 7-Bromoacetyl-9,9-bis(2-methoxyethyl)-2-diphenylaminofluorene **649724-49-2P**, 7-[1,2-Dihydro-1,2-methano(60)fullerene-61-carbonyl]-9,9-bis(2-methoxyethyl)-2-diphenylaminofluorene **649724-50-5P**, 7-[1,2-Dihydro-1,2-methano(60)fullerene-61-carbonyl]-9,9-bis(2-hydroxyethyl)-2-diphenylaminofluorene

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(intermediate; preparation and laser irradiation of fullerene derivs. for generation of singlet oxygen useful for inhibition of tumor growth)

RN 486998-57-6 CAPLUS
CN Ethanone, 2-bromo-1-[7-(diphenylamino)-9,9-diethyl-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)

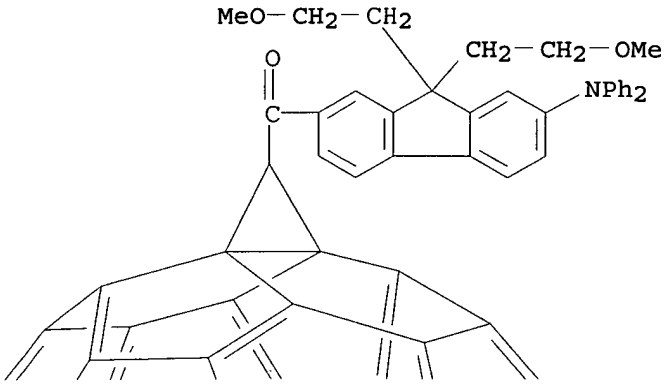


RN 649724-47-0 CAPLUS
CN Ethanone, 2-bromo-1-[7-(diphenylamino)-9,9-bis(2-methoxyethyl)-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)



RN 649724-49-2 CAPLUS
CN Methanone, 3'H-cyclopropa[1,9][5,6]fulleren-C60-Ih-3'-yl[7-(diphenylamino)-9,9-bis(2-methoxyethyl)-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)

PAGE 1-A



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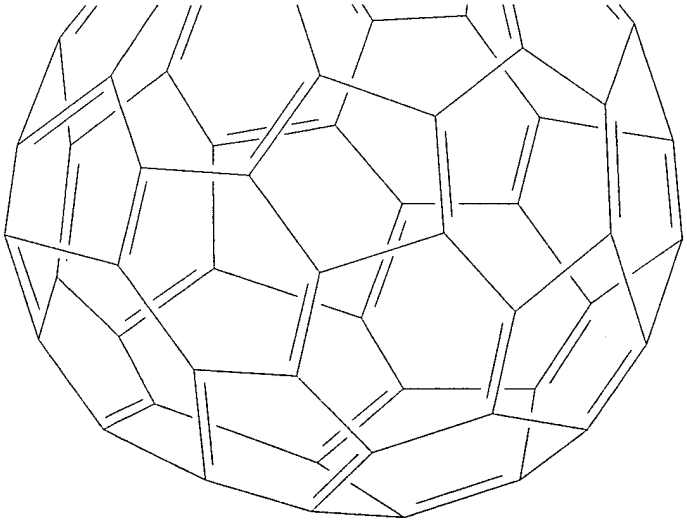
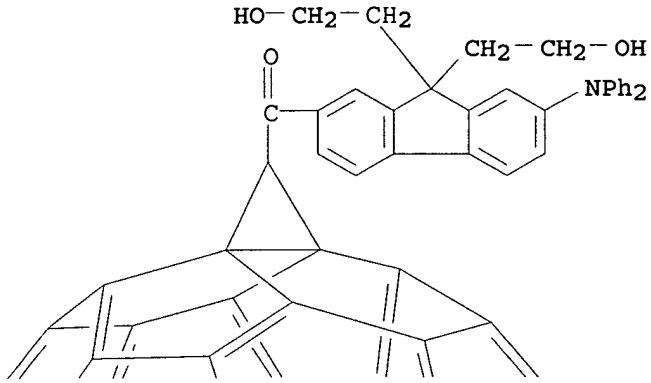


RN 649724-50-5 CAPLUS
CN Methanone, 3'H-cyclopropa[1,9][5,6]fulleren-C60-Ih-3'-yl[7-(diphenylamino)-9,9-bis(2-hydroxyethyl)-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)

PAGE 1-A



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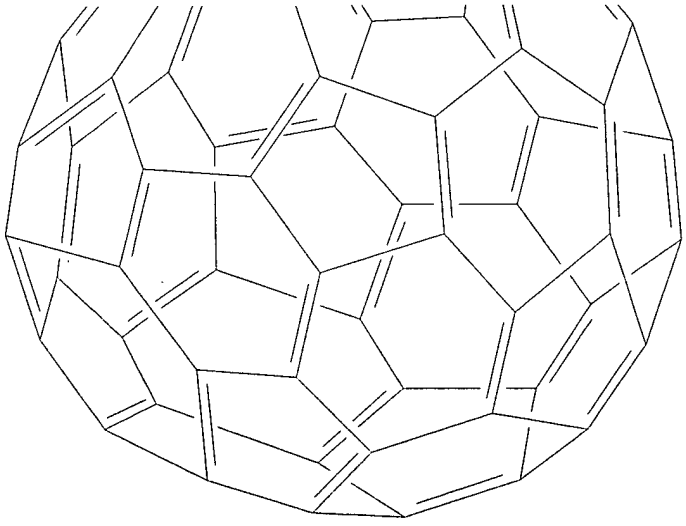
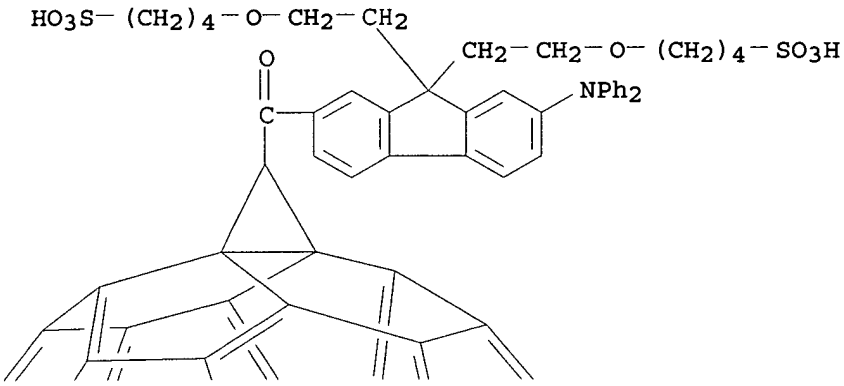


IT **649724-51-6P**, 7-[1,2-Dihydro-1,2-methano(60)fullerene-61-carbonyl]-9,9-bis[2-(4-sulfobutoxy)ethyl]-2-diphenylaminofluorene
RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation and laser irradiation of fullerene derivs. for generation of singlet oxygen useful for inhibition of tumor growth)

RN 649724-51-6 CAPLUS
CN 1-Butanesulfonic acid, [[2-(3'H-cyclopropa[1,9][5,6]fulleren-C60-Ih-3'-ylcarbonyl)-7-(diphenylamino)-9H-fluoren-9-ylidene]bis(2,1-ethanediyloxy)]bis- (9CI) (CA INDEX NAME)

PAGE 1-A



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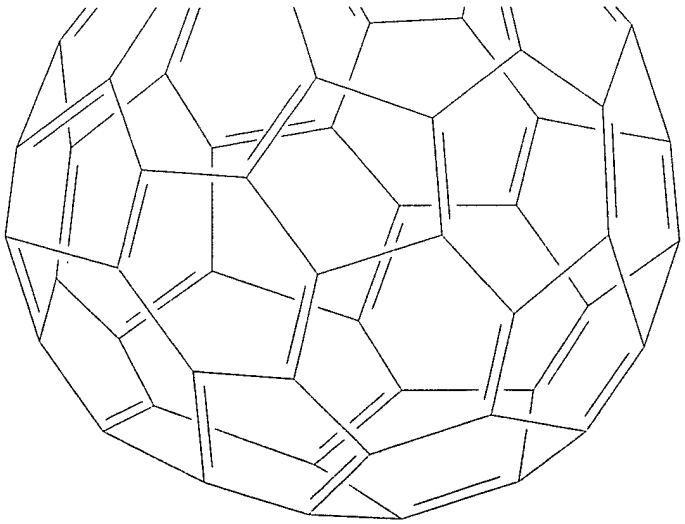
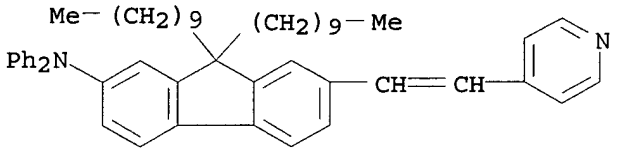


REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 33 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:10215 CAPLUS
DOCUMENT NUMBER: 141:30387
TITLE: Two-photon excitation of dyes in a polymer matrix by femtosecond pulses from a Ti:sapphire laser
AUTHOR(S): Meshalkin, Yu. P.; Svetlichnyi, V. A.; Reznichenko, A. V.; Myachin, A. Yu.; Bakhareva, S. S.; Dolotov, S. M.; Kopylova, T. N.; Ponomarenko, E. P.
CORPORATE SOURCE: Center for Photodynamic Research, Research Institute of Physiology, Siberian Branch, Russian Academy of Medical Sciences, Novosibirsk, 630117, Russia
SOURCE: Quantum Electronics (2003), 33(9), 803-806
CODEN: QUELEZ; ISSN: 1063-7818
PUBLISHER: Turpion Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Two-photon fluorescence was observed for 18 organic dyes in a PMMA matrix excited by a fs Ti:Al2O3 laser. The product of the cross section for 2-photon absorption by the quantum yield of fluorescence (2-photon fluorescence cross section) is estimated by comparing it with fluorescence of Rhodamine 6G in EtOH. Using this parameter, dyes are selected that exhibit the most intense fluorescence in PMMA and their concns. in PMMA are optimized. Coumarin and rhodamine dyes in polymer matrixes are proposed for using as visualizers of fs radiation of a Ti:Al2O3 laser and as detectors in self-triggering systems.
IT **191667-13-7**
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(two-photon excitation by fs pulses from titanium-doped alumina laser of PMMA matrix containing)
RN 191667-13-7 CAPLUS
CN 9H-Fluoren-2-amine, 9,9-didecyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]-(9CI) (CA INDEX NAME)



REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

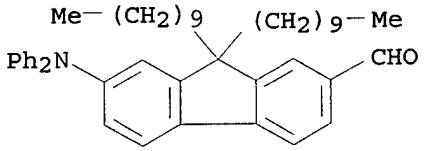
L6 ANSWER 34 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2003:891017 CAPLUS
DOCUMENT NUMBER: 141:196943
TITLE: Nonlinear optical spectroscopic characterization of a series of fluorene derivatives
AUTHOR(S): Hales, Joel M.; Schafer, Katherine J.; Morales, Alma M.; Belfield, Kevin D.; Hagan, David J.; Van Stryland, Eric W.
CORPORATE SOURCE: SChool of Optics/CREOL, Univ. of Central Florida, Orlando, FL, 32816, USA
SOURCE: Proceedings of SPIE-The International Society for Optical Engineering (2003), 5211(Nonlinear Optical Transmission and Multiphoton Processes in Organics),

21-30
CODEN: PSISDG; ISSN: 0277-786X
PUBLISHER: SPIE-The International Society for Optical Engineering
DOCUMENT TYPE: Journal
LANGUAGE: English

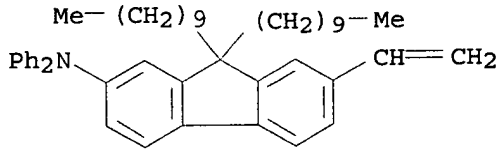
AB The authors have performed nonlinear spectroscopic measurements to study the chemical structure/nonlinear optical property relations for a set of alkyl fluorene derivs. The characterization method the authors used is a femtosecond white-light continuum (WLC) pump-probe spectrometer that can rapidly characterize an organic samples nondegenerate two-photon absorption (2PA) spectrum. The nature of these expts. requires sophisticated data anal. In particular, the relative group velocity mismatch between the pump and probe, which are at different frequencies, makes these pulses walk through each other within the thickness of the sample. For widely different frequencies, this can severely diminish the 2PA signal strength. However, given careful anal., the authors found good agreement with known semiconductor samples. Confidence in this method has allowed the authors to study the effects of solvent effect, electron-withdrawing character, conjugation length, and symmetry on the two-photon absorbing properties of these mols. The authors found an optimum solvent polarity as well as electron-withdrawing character which serves to maximize the strength of the 2PA in these materials. Different synthesis avenues provided the authors with two different methods of extending the conjugation length that increases the nonlinearity as well. Finally, studies of mols. with disparate symmetry have allowed the authors to identify the symmetry of the excited states. The authors present the 1st exptl. study of the intermediate state resonance enhancement of nondegenerate 2PA in organic mols. Using a simplified sum-over-states expression, the authors make comparisons between experiment and theory.

IT **348631-00-5 738584-52-6 738584-53-7**
RL: PRP (Properties)
(nonlinear optical spectroscopic characterization of a series of fluorene derivs.)

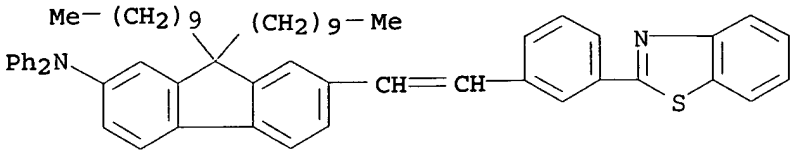
RN 348631-00-5 CAPLUS
CN 9H-Fluorene-2-carboxaldehyde, 9,9-didecyl-7-(diphenylamino)- (9CI) (CA INDEX NAME)



RN 738584-52-6 CAPLUS
CN 9H-Fluoren-2-amine, 9,9-didecyl-7-ethenyl-N,N-diphenyl- (9CI) (CA INDEX NAME)

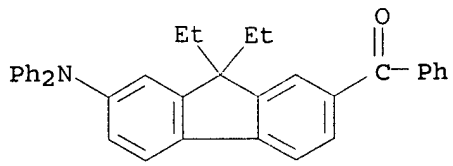


RN 738584-53-7 CAPLUS
CN 9H-Fluoren-2-amine, 7-[2-[3-(2-benzothiazolyl)phenyl]ethenyl]-9,9-didecyl-N,N-diphenyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 35 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2003:702370 CAPLUS
DOCUMENT NUMBER: 140:41640
TITLE: Influence of electron-acceptor strength on the resonant two-photon absorption cross sections of diphenylaminofluorene-based chromophores
AUTHOR(S): Guo, Jing-Dong; Wang, Chuan-Kui; Luo, Yi; Agren, Hans
CORPORATE SOURCE: Theoretical Chemistry, SCFAB, Royal Institute of Technology, Stockholm, S-10691, Swed.
SOURCE: Physical Chemistry Chemical Physics (2003), 5(18), 3869-3873
CODEN: PPCPFQ; ISSN: 1463-9076
PUBLISHER: Royal Society of Chemistry
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Resonant two-photon absorption (TPA) cross sections of a series of diphenylaminofluorene-based chromophores with various electron acceptors are predicted using the RPA and using hybrid d. functional theory implemented for a two-state model. A comparison of the two methods indicates that the two-state model is adequate for describing the TPA cross sections of all asym. charge-transfer systems under investigation. It is demonstrated that the inclusion of electron correlation can drastically increase the absolute values of the TPA cross sections, but that it has negligible effects on the relative order of the TPA activity of the mols.
IT **349123-45-1**, AF-370
RL: PRP (Properties)
(influence of electron-acceptor strength on resonant two-photon absorption cross sections of diphenylaminofluorene-based chromophores)
RN 349123-45-1 CAPLUS
CN Methanone, [7-(diphenylamino)-9,9-diethyl-9H-fluoren-2-yl]phenyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

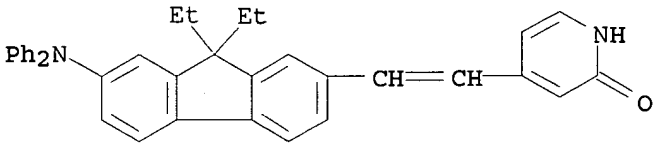
L6 ANSWER 36 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2003:686696 CAPLUS
DOCUMENT NUMBER: 140:50152

TITLE: A theoretical study of the photooxidation of a fluorene-based two-photon chromophore
AUTHOR(S): Guo, Jing-Dong; Luo, Yi
CORPORATE SOURCE: Laboratory of Theoretical Chemistry, Royal Institute of Technology, Stockholm, S-10691, Swed.
SOURCE: THEOCHEM (2003), 635, 1-9
CODEN: THEODJ; ISSN: 0166-1280
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English

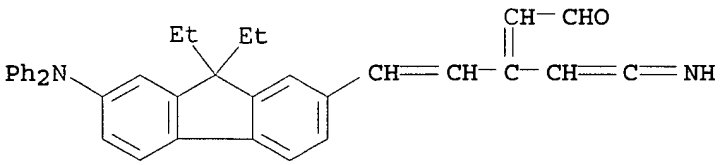
AB The IR and optical absorption spectra of a fluorene-based two-photon chromophore AF50 (N,N-diphenyl-7-2-(4-pyridinyl)-ethenyl-9,9-di-n-decyl-9H-fluorene-2-amine) and its photooxidn. products after UV exposure have been calculated using hybrid d. functional theory. The authors calcns. have provided very useful information about the nature of the read/write process of AF50 and its possible final products.

IT **634908-90-0 634908-91-1 634908-92-2**
634908-93-3 634908-94-4 634908-95-5
634908-96-6 634908-97-7 634908-98-8
RL: CPS (Chemical process); FMU (Formation, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); FORM (Formation, nonpreparative); PROC (Process)
(photoproduct; theor. study of photooxidn. of fluorene-based two-photon chromophore used in optical memory devices)

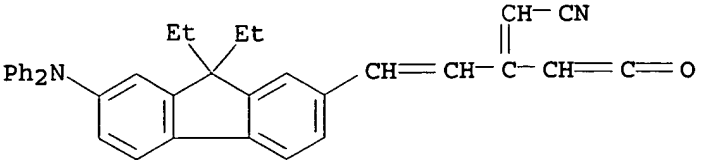
RN 634908-90-0 CAPLUS
CN 2(1H)-Pyridinone, 4-[2-[7-(diphenylamino)-9,9-diethyl-9H-fluoren-2-yl]ethenyl]- (9CI) (CA INDEX NAME)



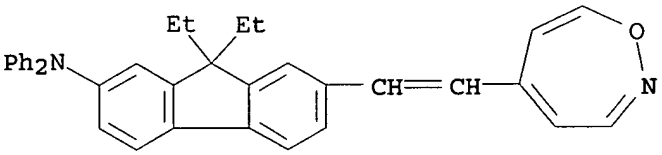
RN 634908-91-1 CAPLUS
CN 2,4-Pentadienal, 3-[2-[7-(diphenylamino)-9,9-diethyl-9H-fluoren-2-yl]ethenyl]-5-imino- (9CI) (CA INDEX NAME)



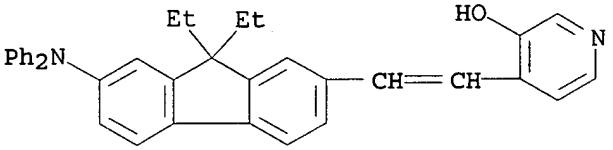
RN 634908-92-2 CAPLUS
CN 2,4-Pentadienenitrile, 3-[2-[7-(diphenylamino)-9,9-diethyl-9H-fluoren-2-yl]ethenyl]-5-oxo- (9CI) (CA INDEX NAME)



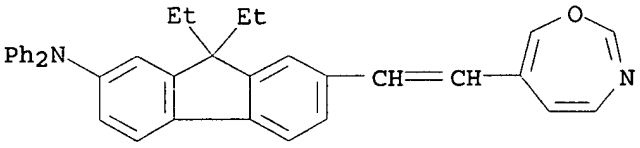
RN 634908-93-3 CAPLUS
CN 9H-Fluoren-2-amine, 9,9-diethyl-7-[2-(1,2-oxazepin-5-yl)ethenyl]-N,N-diphenyl- (9CI) (CA INDEX NAME)



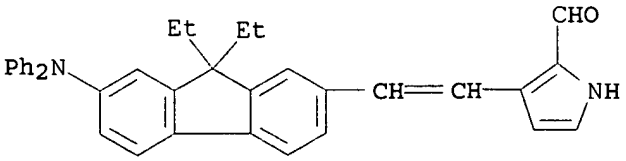
RN 634908-94-4 CAPLUS
CN 3-Pyridinol, 4-[2-[7-(diphenylamino)-9,9-diethyl-9H-fluoren-2-yl]ethenyl]- (9CI) (CA INDEX NAME)



RN 634908-95-5 CAPLUS
CN 9H-Fluoren-2-amine, 9,9-diethyl-7-[2-(1,3-oxazepin-6-yl)ethenyl]-N,N-diphenyl- (9CI) (CA INDEX NAME)

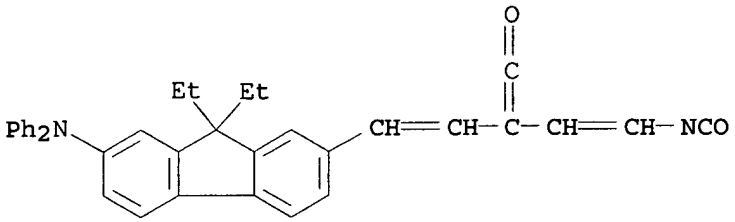


RN 634908-96-6 CAPLUS
CN 1H-Pyrrole-2-carboxaldehyde, 3-[2-[7-(diphenylamino)-9,9-diethyl-9H-fluoren-2-yl]ethenyl]- (9CI) (CA INDEX NAME)

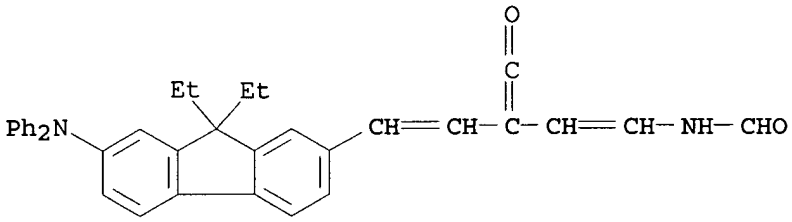


RN 634908-97-7 CAPLUS

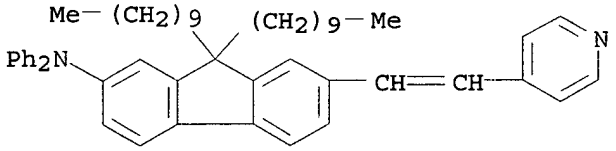
CN 1,3-Butadien-1-one, 2-[2-[7-(diphenylamino)-9,9-diethyl-9H-fluoren-2-yl]ethenyl]-4-isocyanato- (9CI) (CA INDEX NAME)



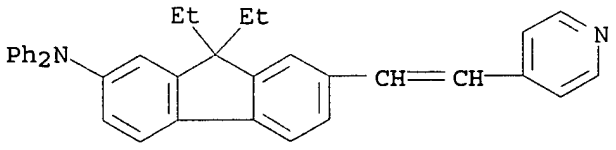
RN 634908-98-8 CAPLUS
CN Formamide, N-[3-carbonyl-5-[7-(diphenylamino)-9,9-diethyl-9H-fluoren-2-yl]-1,4-pentadienyl]- (9CI) (CA INDEX NAME)



IT **191667-13-7**, AF50 **197969-56-5**
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(theor. study of photooxidn. of fluorene-based two-photon chromophore used in optical memory devices)
RN 191667-13-7 CAPLUS
CN 9H-Fluoren-2-amine, 9,9-didecyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]- (9CI) (CA INDEX NAME)



RN 197969-56-5 CAPLUS
CN 9H-Fluoren-2-amine, 9,9-diethyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]- (9CI) (CA INDEX NAME)



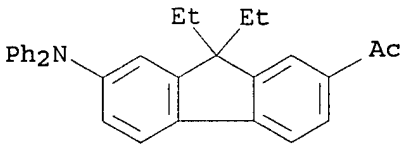
REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 37 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2003:600631 CAPLUS
DOCUMENT NUMBER: 139:314360
TITLE: Inter- and Intramolecular Photoinduced Electron-Transfer Processes between C60 and Diphenylaminofluorene in Solutions
AUTHOR(S): Luo, Hongxia; Fujitsuka, Mamoru; Araki, Yasuyuki; Ito, Osamu; Padmawar, Prashant; Chiang, Long Y.
CORPORATE SOURCE: Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Aoba, Sendai, 980-8577, Japan
SOURCE: Journal of Physical Chemistry B (2003), 107(35), 9312-9318
CODEN: JPCBFK; ISSN: 1520-6106
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

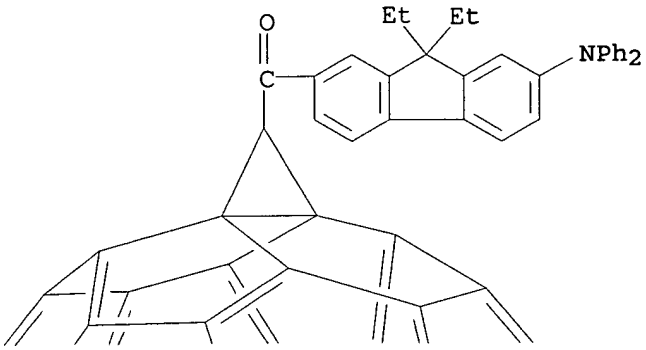
AB Intramol. photoinduced charge-separation and charge-recombination processes of a covalently bonded buckminsterfullerene-diphenylaminofluorene (C60-DPAF) dyad, in which the diphenylaminofluorene moiety is connected to C60 via a ketone group, have been investigated. Quenching of the fluorescence intensities and the observed short fluorescence lifetimes of the C60 moiety of the dyad in benzonitrile (PhCN) and DMF indicated that charge separation takes place via the singlet excited state of the C60 moiety at a fast rate with high efficiency. On the basis of the nanosecond transient absorption spectra, formation of the radical ion pair C•-60-DPAF•+ was confirmed in DMF; the radical ion pair decays with a lifetime of 150 ns. From the temperature dependence of the charge-recombination rate consts., the reorganization energy was evaluated to be 0.81 eV in DMF, which is reasonably small, characteristic of fullerene derivs. On the other hand, a mixture of DPAF and C60 showed intermol. electron transfer via the triplet state of C60 in polar solvents such as PhCN.

IT **612057-44-0**
RL: CPS (Chemical process); FMU (Formation, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); FORM (Formation, nonpreparative); PROC (Process)
(inter- and intramol. photoinduced electron-transfer processes between C60 and diphenylaminofluorene in solns.)
RN 612057-44-0 CAPLUS
CN Ethanone, 1-[7-(diphenylamino)-9,9-diethyl-9H-fluoren-2-yl]-, radical ion(1+) (9CI) (CA INDEX NAME)

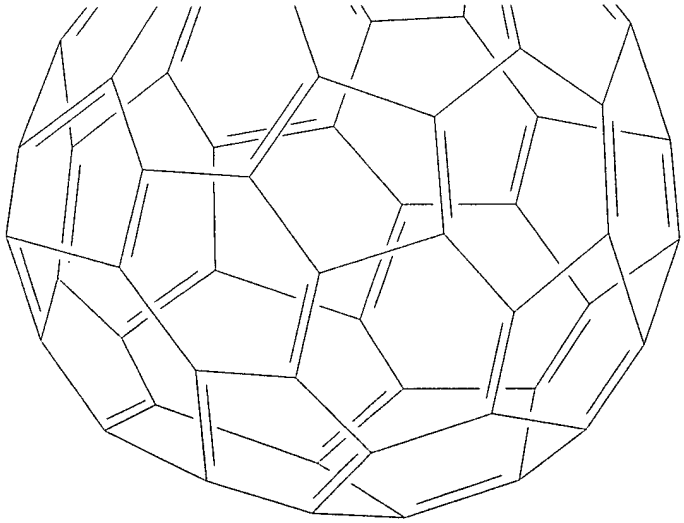


IT **486998-58-7 612057-42-8**
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(inter- and intramol. photoinduced electron-transfer processes between C60 and diphenylaminofluorene in solns.)
RN 486998-58-7 CAPLUS
CN Methanone, 3'H-cyclopropa[1,9][5,6]fulleren-C60-Ih-3'-yl[7-(diphenylamino)-9,9-diethyl-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)

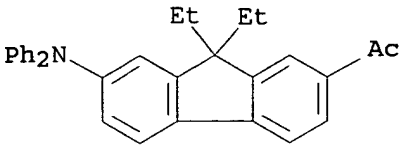
PAGE 1-A



PAGE 2-A



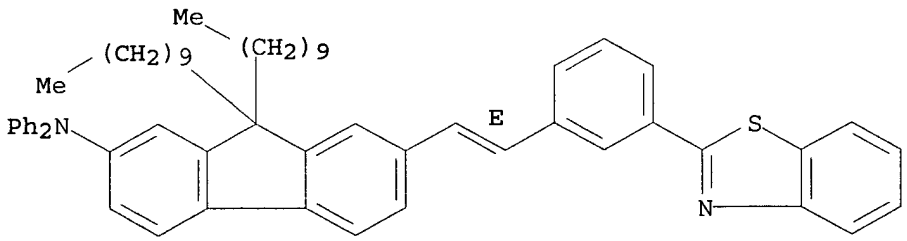
RN 612057-42-8 CAPLUS
CN Ethanone, 1-[7-(diphenylamino)-9,9-diethyl-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 38 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2003:293006 CAPLUS
DOCUMENT NUMBER: 139:36200
TITLE: Chemical structure/nonlinear optical property relations for fluorenyl ring system derivatives
AUTHOR(S): Hales, J.; Schafer, K. J.; Morales, A. M.; Belfield, K. D.; Hagan, D. J.; Van Stryland, E. W.
CORPORATE SOURCE: School of Optics/CREOL, University of Central Florida, Orlando, FL, 32816-2700, USA
SOURCE: Trends in Optics and Photonics (2002), 79(Nonlinear Optics), 369-371
CODEN: TOPRBS
PUBLISHER: Optical Society of America
DOCUMENT TYPE: Journal
LANGUAGE: English
AB We present initial work involving chemical-structure/nonlinear-optical (NLO) property relations for a set of fluorene derivs. This is achievable using our femtosecond white-light continuum pump-probe nonlinear spectrometer which can rapidly characterize a sample's two-photon absorption spectrum.
IT **540536-57-0**
RL: PRP (Properties)
(chemical structure-nonlinear optical property relations for fluorenyl ring system derivs.)
RN 540536-57-0 CAPLUS
CN 9H-Fluoren-2-amine, 7-[(1E)-2-[3-(2-benzothiazolyl)phenyl]ethenyl]-9,9-didecyl-N,N-diphenyl- (9CI) (CA INDEX NAME)

Double bond geometry as shown.



REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 39 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2003:71489 CAPLUS
DOCUMENT NUMBER: 138:115140
TITLE: Two-photon absorption-type optical information recording media
INVENTOR(S): Inagaki, Yoshio; Akiba, Masaharu

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

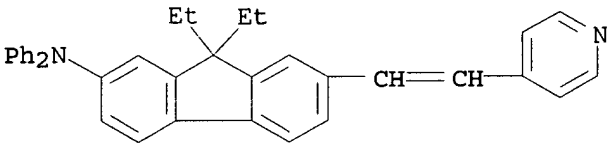
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003029376	A2	20030129	JP 2001-216758	20010717

PRIORITY APPLN. INFO.: JP 2001-216758 20010717

AB A highly sensitive recording medium, which requires relatively low power laser to provoke two-photon absorption, is characterized by containing a fluorescence quencher and a two-photon absorbing compound having a two-photon absorption cross-section >102 GM (1 GM = 1 + 10-50 cm4 s mol.-1 photon-1).

IT **197969-56-5**
RL: DEV (Device component use); USES (Uses)
(two-photon absorbing compound in optical information recording media)

RN 197969-56-5 CAPLUS
CN 9H-Fluoren-2-amine, 9,9-diethyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]-(9CI) (CA INDEX NAME)



L6 ANSWER 40 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2003:56348 CAPLUS
DOCUMENT NUMBER: 138:114755
TITLE: Composite for two photon absorption
INVENTOR(S): Inagaki, Yoshio; Akiba, Masaharu; Harada, Akinori; Tani, Takeharu
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 14 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

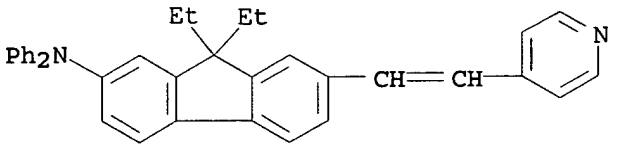
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003020469	A2	20030124	JP 2001-206780	20010706
US 2003052311	A1	20030320	US 2002-188959	20020705

PRIORITY APPLN. INFO.: JP 2001-206780 A 20010706
JP 2001-212310 A 20010712

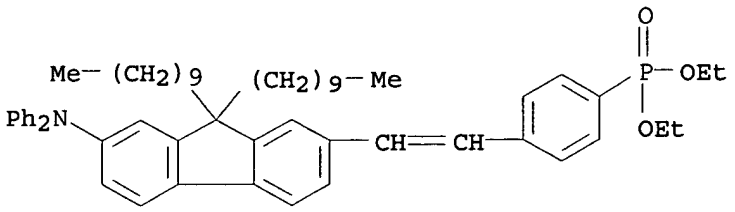
AB The invention refers to a composite with a two-photon absorption cross section > 102 Goppert-Mayers (GM) where 1 GM = 1 x 10-50cm4s mol.-1 photon-3 in order to achieve two photon absorption using relatively low-powered lasers.

IT **197969-56-5**
RL: DEV (Device component use); USES (Uses)
(conjugated aryl amine and luminescent compound as composite for two

photon absorption)
RN 197969-56-5 CAPLUS
CN 9H-Fluoren-2-amine, 9,9-diethyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]-(9CI) (CA INDEX NAME)



L6 ANSWER 41 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2002:924150 CAPLUS
DOCUMENT NUMBER: 138:287182
TITLE: Steady-State Spectroscopic and Fluorescence Lifetime Measurements of New Two-Photon Absorbing Fluorene Derivatives
AUTHOR(S): Belfield, Kevin D.; Bondar, Mikhailo V.; Przhonska, Olga V.; Schafer, Katherine J.
CORPORATE SOURCE: Department of Chemistry, University of Central Florida, Orlando, FL, USA
SOURCE: Journal of Fluorescence (2002), 12(3/4), 449-454
CODEN: JOFLEN; ISSN: 1053-0509
PUBLISHER: Kluwer Academic/Plenum Publishers
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Steady-state excitation anisotropy, lifetimes, and time-resolved emission spectra of new 2-photon absorbing fluorene derivs. [(7-benzothiazol-2-yl-9,9-didecylfluoren-2-yl)diphenylamine, 9,9-didecyl-2,7-bis(N,N-diphenylamino)fluorene, and {4-[2-(7-diphenylamino-9,9-diethylfluoren-2-yl)-vinyl]phenyl}phosphoric acid di-Et ester] were measured in aprotic solvents at room temperature Excitation anisotropy spectra in viscous silicon oil allowed the determination of the spectral position of three electronic transitions S0 S1, S0 S2, S0 S3 (Si, i = 1, 2, 3 are the singlet electronic states) and the angles (.simeq. 30°) between absorption S0 S1 and emission S1 S0 dipole moments for the first electronic transition. Solvate relaxation processes in the first excited state of the investigated fluorene mols. affect the lifetimes of these states, τ1, so that exptl. values of τ1 do not correspond to those calculated by Strickler and Berg theory. The influence of the mol. concentration on the fluorescence quantum yields and τ1 have been investigated.
IT **507271-13-8**
RL: PRP (Properties)
(steady-state spectroscopic and fluorescence lifetime measurements of new two-photon absorbing fluorene derivs.)
RN 507271-13-8 CAPLUS
CN Phosphonic acid, [4-[2-[9,9-didecyl-7-(diphenylamino)-9H-fluoren-2-yl]ethenyl]phenyl]-, diethyl ester (9CI) (CA INDEX NAME)



REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

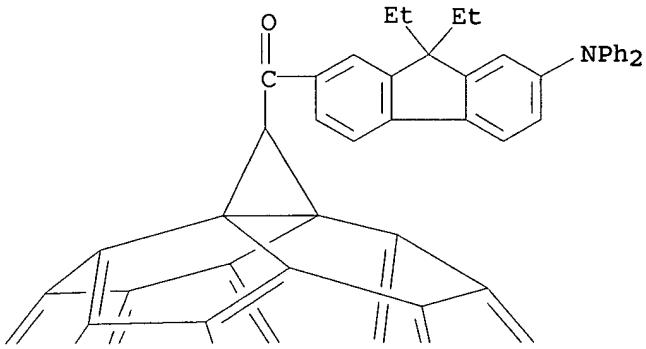
L6 ANSWER 42 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2002:647374 CAPLUS
DOCUMENT NUMBER: 138:106347
TITLE: Synthesis of C60-diphenylaminofluorene dyad with large 2PA cross-sections and efficient intramolecular two-photon energy transfer
AUTHOR(S): Chiang, Long Y.; Padmawar, Prashant A.; Canteenwala, Taizoon; Tan, Loon-Seng; He, Guang S.; Kannan, Ramamurthi; Vaia, Richard; Lin, Tzu-Chau; Zheng, Qingdong; Prasad, Paras N.
CORPORATE SOURCE: Institute of Nanoscience and Engineering, Department of Chemistry, University of Massachusetts Lowell, Lowell, MA, 01854, USA
SOURCE: Chemical Communications (Cambridge, United Kingdom) (2002), (17), 1854-1855
CODEN: CHCOFS; ISSN: 1359-7345
PUBLISHER: Royal Society of Chemistry
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 138:106347

AB The first, highly two-photon active C60 derivative comprised of a A-sp3-D conjugate structure was synthesized showing effective two-photon absorption cross-sections ($\sigma 2'$ = 196 + 10-48 cm4 sec-1 mol.-1) in the nanosecond regime among the best values for diphenylaminofluorene-based AFX chromophores.

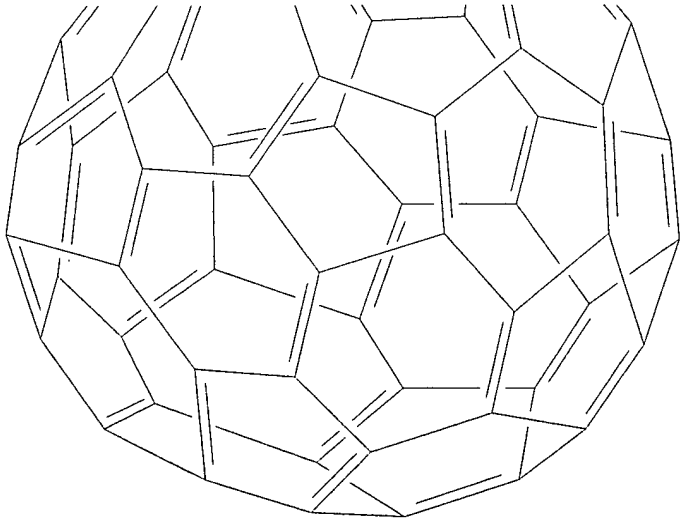
IT **486998-58-7P**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(2PA cross-section; synthesis of C60-diphenylaminofluorene dyad with large 2PA cross-sections and efficient intramol. two-photon energy transfer)

RN 486998-58-7 CAPLUS
CN Methanone, 3'H-cyclopropa[1,9][5,6]fulleren-C60-Ih-3'-yl[7-(diphenylamino)-9,9-diethyl-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)

PAGE 1-A

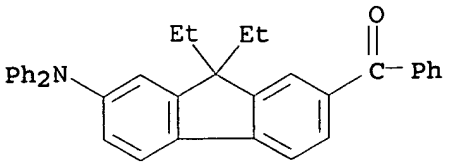


PAGE 2-A

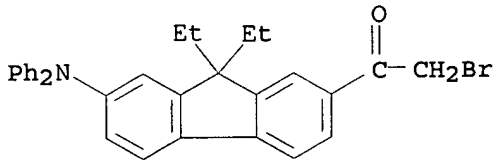


IT **349123-45-1**, AF-370
RL: PRP (Properties)
(2PA cross-section; synthesis of C60-diphenylaminofluorene dyad with large 2PA cross-sections and efficient intramol. two-photon energy transfer)
RN 349123-45-1 CAPLUS
CN Methanone, [7-(diphenylamino)-9,9-diethyl-9H-fluoren-2-yl]phenyl- (9CI)

(CA INDEX NAME)



IT **486998-57-6P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(cyclopropanation; synthesis of C60-diphenylaminofluorene dyad with large 2PA cross-sections and efficient intramol. two-photon energy transfer)
RN 486998-57-6 CAPLUS
CN Ethanone, 2-bromo-1-[7-(diphenylamino)-9,9-diethyl-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 43 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2002:458216 CAPLUS
DOCUMENT NUMBER: 137:39382
TITLE: 2,2'-Bridged biphenyl compound, optical recording material, and recording method
INVENTOR(S): Akiba, Masaharu
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 20 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002172864	A2	20020618	JP 2001-110119	20010409
PRIORITY APPLN. INFO.:			JP 2000-297219 A	20000928

OTHER SOURCE(S): MARPAT 137:39382
GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB Laser-sensitive optical recording material contains I [X = CR1R2, NR3, O,

S, Se; R1-3 = alkyl, alkenyl, alkynyl, aryl, heterocycle (these may be substituted); R = substituent; n1-2 = 0-4]. The material is recorded by using ≥2 photon absorption induced by irradiation of laser beam with wavelength having no linear absorption and loner than linear absorption band of I. Five other 2,2'-bridged biphenyl compds. such as II , III, and IV [R1-2, R4, R13-14 = alkyl, alkenyl, alkynyl, aryl, heterocycle (these may be substituted); R5-8 = substituent; R15 = (substituted) heterocycle; XY- = Y-valent anion; Y = 1-5; h = 0-4; j = 0-6; i = 0-10; p = 0-2m; m = 0-5] are also claimed. The material shows high d. and capacity recording without using short-wavelength laser.

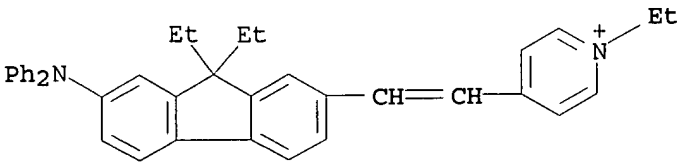
IT **437713-15-0P**
RL: DEV (Device component use); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)
(optical recording material containing bridged biphenyl compound)

RN 437713-15-0 CAPLUS

CN Pyridinium, 4-[2-[7-(diphenylamino)-9,9-diethyl-9H-fluoren-2-yl]ethenyl]-1-ethyl-, perchlorate (9CI) (CA INDEX NAME)

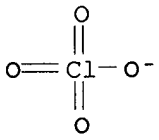
CM 1

CRN 437713-14-9
CMF C38 H37 N2



CM 2

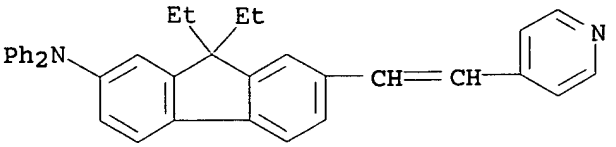
CRN 14797-73-0
CMF Cl O4



IT **197969-56-5**
RL: DEV (Device component use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(optical recording material containing bridged biphenyl compound)

RN 197969-56-5 CAPLUS

CN 9H-Fluoren-2-amine, 9,9-diethyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]- (9CI) (CA INDEX NAME)



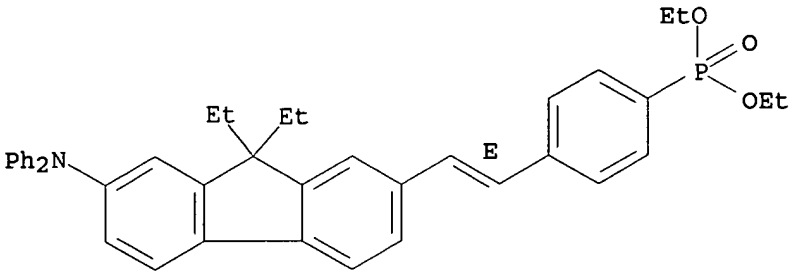
L6 ANSWER 44 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2002:372749 CAPLUS
DOCUMENT NUMBER: 137:176417
TITLE: Spectral properties of several fluorene derivatives with potential as two-photon fluorescent dyes
AUTHOR(S): Belfield, K. D.; Bondar, M. V.; Przhonska, O. V.; Schafer, K. J.; Mourad, W.
CORPORATE SOURCE: Department of Chemistry and CREOL/School of Optics, University of Central Florida, Orlando, FL, 32816-2366, USA
SOURCE: Journal of Luminescence (2002), 97(2), 141-146
CODEN: JLUMA8; ISSN: 0022-2313
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Investigations of the absorption, steady-state fluorescence, excitation and excitation anisotropy properties of several fluorene derivs., (7-benzothiazol-2-yl-9,9-didecylfluoren-2-yl)-diphenylamine, 9,9-didecyl-2,7-bis-(N,N-diphenylamino)fluorene and {4-[2-(7-diphenylamino-9,9-diethylfluoren-2-yl)vinyl]phenyl}phosphoric acid di-Et ester, in liquid solns. have been conducted. Spectral characteristics of these compds., including fluorescence quantum yields, were measured in acetonitrile, methylene chloride, THF and hexane at room temperature Excitation anisotropy spectra provided a means to determine the nature of the short wavelength absorption bands as an electronic transition into a higher excited singlet state. It was found that excitation spectra in the short wavelength region do not correspond to the absorption bands that are correlated with the wavelength dependence of the fluorescence quantum yields. Major reasons of such spectral behavior are discussed.

IT **252000-05-8**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(UV-visible absorption, fluorescence, excitation anisotropy and excitation spectra of fluorene derivs. with potential as two-photon fluorescent dyes in solvents of varying polarity)

RN 252000-05-8 CAPLUS
CN Phosphonic acid, [4-[(1E)-2-[7-(diphenylamino)-9,9-diethyl-9H-fluoren-2-yl]ethenyl]phenyl]-, diethyl ester (9CI) (CA INDEX NAME)

Double bond geometry as shown.



REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 45 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2001:923862 CAPLUS
DOCUMENT NUMBER: 136:54238
TITLE: Multiphoton photosensitization system
INVENTOR(S): Devoe, Robert J.
PATENT ASSIGNEE(S): 3M Innovative Properties Company, USA
SOURCE: PCT Int. Appl., 66 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

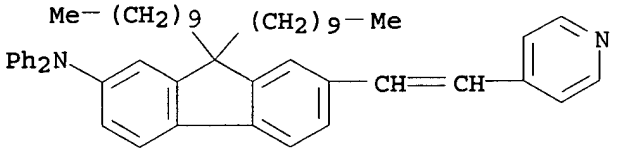
PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
WO 2001096409	A2	20011220	WO 2001-US19164		20010614
WO 2001096409	A3	20020404			
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW					
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG					
EP 1297021	A2	20030402	EP 2001-946384		20010614
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR					
JP 2004503616	T2	20040205	JP 2002-510544		20010614
US 6852766	B1	20050208	US 2002-311041		20021212
US 2005054744	A1	20050310	US 2004-964510		20041013
PRIORITY APPLN. INFO.:			US 2000-211703P	P	20000615
			WO 2001-US19164	W	20010614
			US 2002-311041	A3	20021212

OTHER SOURCE(S): MARPAT 136:54238

AB A method of multiphoton photosensitizing a photoreactive composition comprises irradiating the composition with light sufficient to cause simultaneous absorption of at least two photons, thereby inducing at least one acid- or radical-initiated chemical reaction where the composition is exposed to the light.

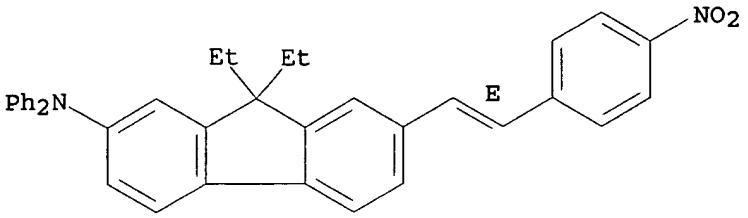
The composition comprises: (a) at least one reactive species that is capable of undergoing such reaction; and (b) at least one multi-component, multiphoton photoinitiator system.

IT **191667-13-7**
RL: CAT (Catalyst use); USES (Uses)
(multiphoton photosensitization system)
RN 191667-13-7 CAPLUS
CN 9H-Fluoren-2-amine, 9,9-didecyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]-(9CI) (CA INDEX NAME)



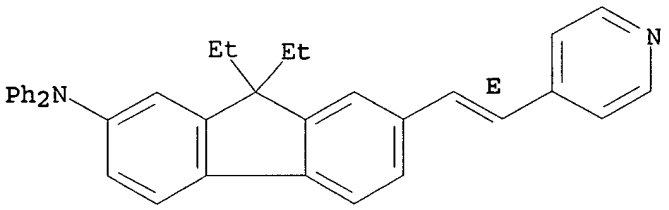
L6 ANSWER 46 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2001:391256 CAPLUS
DOCUMENT NUMBER: 135:217791
TITLE: Effects of π centers and symmetry on two-photon absorption cross sections of organic chromophores
AUTHOR(S): Wang, Chuan-Kui; Macak, Peter; Luo, Yi; Agren, Hans
CORPORATE SOURCE: Theoretical Chemistry, Royal Institute of Technology, Stockholm, S-10044, Swed.
SOURCE: Journal of Chemical Physics (2001), 114(22), 9813-9820
CODEN: JCPSA6; ISSN: 0021-9606
PUBLISHER: American Institute of Physics
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The authors have theor. examined organic mols. that exhibit large 2-photon absorption cross sections in the visible region and that were synthesized in different labs. One- and 2-photon absorption cross sections of the 4 lowest excited states of each mol. were calculated at the same theor. level using ab initio response theory. The mol. length and the 1-photon absorption intensity are quite strongly correlated factors, but a corresponding correlation for the 2-photon absorption is much weaker or is missing. But a most crucial role for large 2-photon absorption is played by the π center. For mols. with a given π center a sym. structure with strong donor groups can result in a maximum 2-photon absorption cross section. Theor. findings are consistent with some recent exptl. observations. The chromophore based on dithienothiophene as π center attached with sym. N,N-diphenylamine donors has the largest 2-photon cross section in the visible region among all known 1-dimensional 2-photon organic materials that were reported in the literature.
IT **252000-06-9 358374-63-7**
RL: PRP (Properties)
(effects of π centers and symmetry on two-photon absorption cross sections of organic chromophores)
RN 252000-06-9 CAPLUS
CN 9H-Fluoren-2-amine, 9,9-diethyl-7-[(1E)-2-(4-nitrophenyl)ethenyl]-N,N-diphenyl- (9CI) (CA INDEX NAME)

Double bond geometry as shown.



RN 358374-63-7 CAPLUS
CN 9H-Fluoren-2-amine, 9,9-diethyl-N,N-diphenyl-7-[(1E)-2-(4-pyridinyl)ethenyl]- (9CI) (CA INDEX NAME)

Double bond geometry as shown.

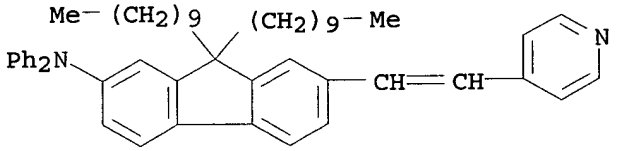


REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

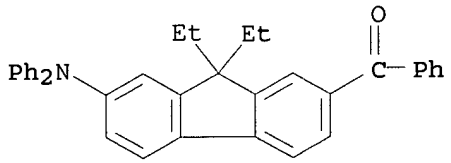
L6 ANSWER 47 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2001:298453 CAPLUS
DOCUMENT NUMBER: 135:93912
TITLE: Diphenylaminofluorene-Based Two-Photon-Absorbing Chromophores with Various π-Electron Acceptors
AUTHOR(S): Kannan, Ramamurthi; He, Guang S.; Yuan, Lixiang; Xu, Faming; Prasad, Paras N.; Dombroskie, Ann G.; Reinhardt, Bruce A.; Baur, Jeffery W.; Vaia, Richard A.; Tan, Loon-Seng
CORPORATE SOURCE: Systran Systems Corporation, Dayton, OH, 45432, USA
SOURCE: Chemistry of Materials (2001), 13(5), 1896-1904
CODEN: CMATEX; ISSN: 0897-4756
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A new series of linear, asym. (diphenylamino)fluorene-based chromophores (AFX) with various strong π-electron acceptors were synthesized and evaluated for two-photon absorptivity. These chromophores were studied to determine a suitable replacement for 2-(4-pyridinyl)vinyl, the π acceptor for our previously reported AFX series, which contains a photochem. and thermooxidatively unstable olefinic unit. In addition to the benzoyl group (AF-370), these π-electron acceptors include 2-benzothiazolyl (AF-240), 2-benzoxazolyl (AF-390), N-phenyl-2-benzimidazolyl (AF-386), and 3,4-diphenyl-1H-imidazol-2-yl (AF-385) moieties (five-membered heterocycles) and the 2-quinoxalinyl (AF-260) group (six-membered heterocycle). From nanosecond nonlinear transmission measurements, these new chromophores have effective two-photon cross sections (σ2') at 800 nm spanning from 3.87 + 10-48 cm4 s/(photon mol.) for AF-385 to 97.46 + 10-48 cm4 s/(photon mol.) for AF-240. Two of them, AF-240 and AF-370 [σ2' = 84.32 + 10-48 cm4 s/(photon mol.)], stand out as having relatively good, albeit lower, values of two-photon cross

sections, as compared to that of previously reported N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]-9,9-didecyl-2-fluorenamine (AF-50) [σ2' = 115.6 + 10-48 cm4 s/(photon mol.)]. However, we observed that AF-240 was more photochem. robust than AF-50 when their THF solns. were subjected to repetitive and prolonged exposure to nanosecond laser radiation. On the basis of nanosecond TPA cross-section data (σ2'/mol. weight values), the general trend for π-electron accepting ability, i.e., ability to accept charge transferred from diphenylamine, appears to be as follows: 2-(4-pyridinyl)vinyl > 2-benzothiazolyl > benzoyl > N-phenyl-2-benzimidazolyl > 2-quinoxalinyl > 2-benzoxazolyl > 4,5-diphenyl-2-imidazolyl.

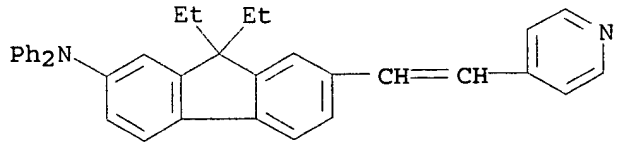
IT **191667-13-7**, AF 50
RL: PRP (Properties)
((diphenylamino)fluorene-based two-photon-absorbing chromophores with various π-electron acceptors)
RN 191667-13-7 CAPLUS
CN 9H-Fluoren-2-amine, 9,9-didecyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]- (9CI) (CA INDEX NAME)



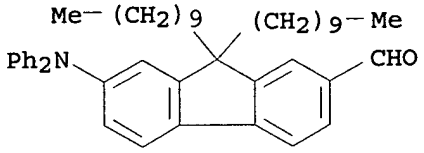
IT **349123-45-1P**
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(AF 370; preparation of (diphenylamino)fluorene-based two-photon-absorbing chromophores with various π-electron acceptors)
RN 349123-45-1 CAPLUS
CN Methanone, [7-(diphenylamino)-9,9-diethyl-9H-fluoren-2-yl]phenyl- (9CI) (CA INDEX NAME)



IT **197969-56-5**
RL: PRP (Properties)
(AF 60; (diphenylamino)fluorene-based two-photon-absorbing chromophores with various π-electron acceptors)
RN 197969-56-5 CAPLUS
CN 9H-Fluoren-2-amine, 9,9-diethyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]- (9CI) (CA INDEX NAME)

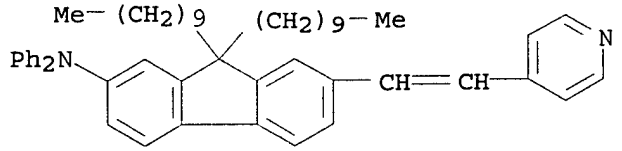


IT **348631-00-5P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of (diphenylamino)fluorene-based two-photon-absorbing chromophores with various π-electron acceptors)
RN 348631-00-5 CAPLUS
CN 9H-Fluorene-2-carboxaldehyde, 9,9-didecyl-7-(diphenylamino)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 54 THERE ARE 54 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 48 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2000:791214 CAPLUS
DOCUMENT NUMBER: 133:355509
TITLE: Theoretical model for excited-state absorption
AUTHOR(S): Das, G. P.; Yeates, A. T.; Dudis, D. S.
CORPORATE SOURCE: U.S. Air Force Research Lab, MLBP Wright Peterson AFB, OH, 45433, USA
SOURCE: International Journal of Quantum Chemistry (2000), 80(4/5), 1039-1042
CODEN: IJQCB2; ISSN: 0020-7608
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB For long incident pulses, measurement of two-photon absorption coeffs. can be complicated by excited-state absorption. We develop here a quant. ab initio model to determine the contribution of excited-state absorption in the interpretation of the two-photon absorption data for such materials. We present representative calcns. of this effect for some selected systems.
IT **191667-13-7**, AF50
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(theor. model for excited-state absorption)
RN 191667-13-7 CAPLUS
CN 9H-Fluoren-2-amine, 9,9-didecyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

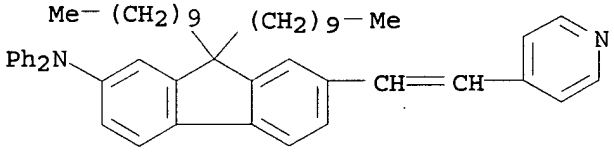
L6 ANSWER 49 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2000:766204 CAPLUS
DOCUMENT NUMBER: 134:107574
TITLE: Multiphoton absorption and optical limiting

AUTHOR(S): Sutherland, R. L.; McLean, D. G.; Kirkpatrick, S. M.; Fleitz, P. A.; Chandra, S.; Brant, M. C.
CORPORATE SOURCE: Air Force Research Laboratory, Materials and Manufacturing Directorate, Wright-Patterson Air Force Base, OH, 45433-7750, USA
SOURCE: NATO Science Series, 3: High Technology (2000), 79(Multiphoton and Light Driven Multielectron Processes in Organics), 67-81
CODEN: NSSTFF; ISSN: 1388-6576
PUBLISHER: Kluwer Academic Publishers
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Optical limiting requires the development of materials exhibiting strong nonlinear absorption. Multiphoton absorption in materials can take the form of instantaneous two-photon absorption or time-integrating excited state absorption. The authors examining both types of mechanisms for optical limiting. Several exptl. methods were used to study these phenomena and characterize materials. Often new or unusual effects arise in these expts. that require careful anal. to elucidate desired parameters. The authors describe several of these and give results for different materials relevant to optical limiting.

IT **191667-13-7**, AF-50
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(multiphoton absorption and optical limiting and nonlinear optical properties for several materials)

RN 191667-13-7 CAPLUS
CN 9H-Fluoren-2-amine, 9,9-didecyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 50 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2000:606926 CAPLUS
DOCUMENT NUMBER: 133:200634
TITLE: Nonlinear spectrophotometer
INVENTOR(S): Mukherjee, Anadi; Mukherjee, Nandini; Sarvis, Conrad S.; Reinhardt, Bruce A.
PATENT ASSIGNEE(S): United States Dept. of the Air Force, USA
SOURCE: U.S., 9 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

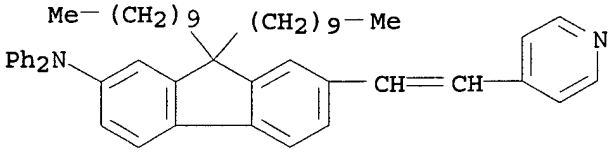
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6111641	A	20000829	US 1998-46462	19980323
US 5991021	A	19991123	US 1999-241191	19990201
PRIORITY APPLN. INFO.:			US 1998-46462 A3	19980323

AB Nonlinear spectrophotometers for fluorescent materials are described which comprise a laser for producing a primary laser beam; a second harmonic generation crystal that alters the primary laser beam; a beam splitter for dividing the primary laser beam into a first signal manifold laser beam and a second signal manifold laser beam; a first neutral d. filter for filtering the first signal manifold laser beam to a first harmonic spectrum; a means for passing filtered first signal manifold laser beam through a sample; a first sensor for detecting filtered first signal manifold laser beam after passing through a sample; a second neutral d. filter for filtering the second signal manifold laser beam to a second harmonic spectrum; a means for passing filtered second signal manifold laser beam through a sample; a second sensor for detecting filtered second signal manifold laser beam after passing through a sample; and a means to compare the outputs of the first and second sensors. The spectrophotometers may be used to measure two-photon absorption coeffs. and cross-sections.

IT **191667-13-7**, AF-50
RL: ANT (Analyte); PRP (Properties); ANST (Analytical study)
(nonlinear spectrophotometers)

RN 191667-13-7 CAPLUS

CN 9H-Fluoren-2-amine, 9,9-didecyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]-(9CI) (CA INDEX NAME)



L6 ANSWER 51 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2000:463667 CAPLUS

DOCUMENT NUMBER: 133:184925

TITLE: Photoluminescence studies and read/write process of a strong two-photon absorbing chromophore

AUTHOR(S): Sivaraman, R.; Clarson, S. J.; Lee, B. K.; Steckl, A. J.; Reinhardt, B. A.

CORPORATE SOURCE: Department of Materials Science and Engineering, University of Cincinnati, Cincinnati, OH, 45221-0012, USA

SOURCE: Applied Physics Letters (2000), 77(3), 328-330
CODEN: APPLAB; ISSN: 0003-6951

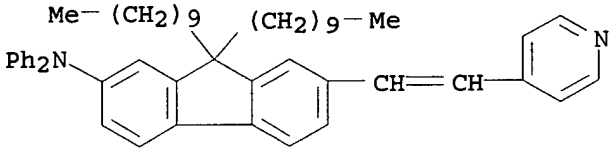
PUBLISHER: American Institute of Physics

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The optical properties of a fluorene-based chromophore exhibiting a high two-photon absorption cross section were studied both in the pure state and as a guest-host system in poly(N-vinylcarbazole). Upon irradiation with a He Cd (He-Cd) laser at 325 nm, the guest-host sample exhibits a blueshift with a maximum emission at 459 nm. Information written onto the samples in the blue can also be read using an Ar+ laser. The chromophore undergoes a chemical change upon irradiation in air, and was found to no longer exhibit upconversion after this transformation. IR anal. of the sample (the chromophore) before and after irradiation was carried out, and the spectra suggest the formation of a new conjugated species. Other applications the authors have developed using this phenomenon include the successful writing of optical device structures in polymer films where the AF-50 is a guest material.

IT **191667-13-7**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(photoluminescence studies and read/write process of a strong two-photon absorbing chromophore)
RN 191667-13-7 CAPLUS
CN 9H-Fluoren-2-amine, 9,9-didecyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 52 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1999:748391 CAPLUS
DOCUMENT NUMBER: 131:344066
TITLE: Nonlinear spectrophotometer
INVENTOR(S): Mukherjee, Anadi; Mukherjee, Nandini; Sarvis, Conrad S.; Reinhardt, Bruce A.
PATENT ASSIGNEE(S): United States Dept. of the Air Force, USA
SOURCE: U.S., 9 pp., Division of U.S. Ser. No. 46,462.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

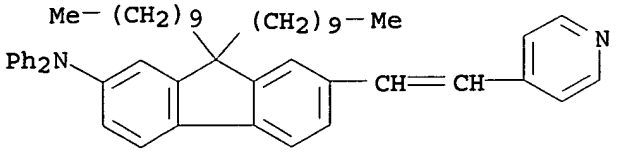
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5991021	A	19991123	US 1999-241191	19990201
US 6111641	A	20000829	US 1998-46462	19980323
PRIORITY APPLN. INFO.:			US 1998-46462 A3	19980323

AB Combined nonlinear spectrophotometers for measuring both fluorescent and nonfluorescent materials are described which comprise a high intensity laser pump source; means for attenuating the the pump beam; means for dividing the pump beam into a first compartment pump beam and a second compartment pump beam; a first compartment nonlinear spectrophotometer for fluorescent sample measurements; and a second compartment nonlinear Michelson interferometer, energized by the second compartment pump beam, for measuring nonfluorescent samples and outputting a signal; means for receiving user inputs on sample parameters; and means for receiving signals from the first and second compartments and processing results. The first compartment nonlinear spectrophotometer includes a frequency doubling crystal that alters the first compartment pump beam; a beam splitter for dividing the first compartment pump beam into a first signal manifold laser beam and a second signal manifold laser beam; first and second neutral d. filters for filtering, resp., the first and second signal manifold laser beam to first and second harmonic spectrum; means for passing the filtered signal manifold beams through a sample; and sensors for detecting the filtered signal manifold beams after they pass through a sample. The instruments can be used to measure the two-photon absorption coeffs. and cross-sections of materials.
IT **191667-13-7**, AF-50

RL: ANT (Analyte); PRP (Properties); ANST (Analytical study)
(combined nonlinear spectrophotometers for measuring both fluorescent and nonfluorescent materials)

RN 191667-13-7 CAPLUS

CN 9H-Fluoren-2-amine, 9,9-didecyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]-(9CI) (CA INDEX NAME)



REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 53 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1999:634693 CAPLUS

DOCUMENT NUMBER: 132:28209

TITLE: New Two-Photon Absorbing Fluorene Derivatives: Synthesis and Nonlinear Optical Characterization

AUTHOR(S): Belfield, Kevin D.; Hagan, David J.; Van Stryland, Eric W.; Schafer, Katherine J.; Negres, Raluca A.

CORPORATE SOURCE: Department of Chemistry and School of Optics, University of Central Florida, Orlando, FL, 32816-2366, USA

SOURCE: Organic Letters (1999), 1(10), 1575-1578
CODEN: ORLEF7; ISSN: 1523-7060

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

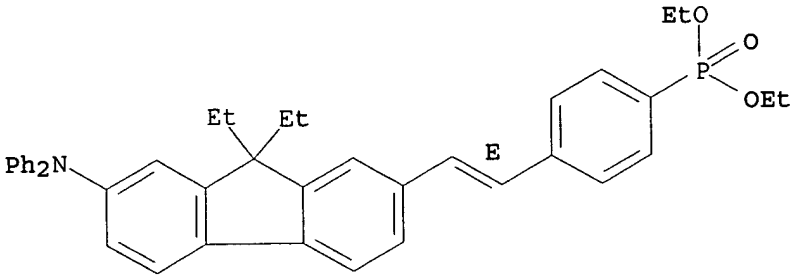
AB Efficient Pd-catalyzed Heck coupling methodol. was employed to provide 2 new fluorene derivs. with phosphonate (2) and nitro (3) electron-withdrawing functionalities. Both derivs. exhibit 2-photon absorption (2PA), as determined by nonlinear absorption measurements using a femtosecond pump/white light continuum probe NLO spectrometer. Both fluorene derivs. have high 2PA cross sections (650 and 1300 + 10-50 cm4 s photon-1 mol.-1 for compds. 2 and 3, resp.).

IT **252000-05-8P 252000-06-9P**
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(new two-photon absorbing fluorene derivs. with synthesis, nonlinear optical absorptivity, and UV-visible spectra)

RN 252000-05-8 CAPLUS

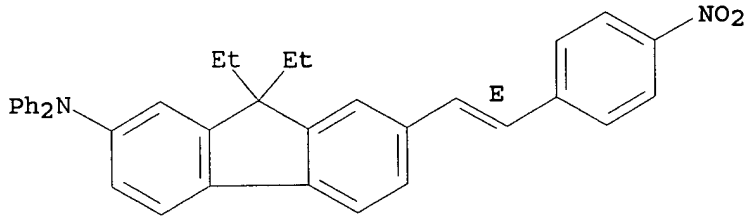
CN Phosphonic acid, [4-[(1E)-2-[7-(diphenylamino)-9,9-diethyl-9H-fluoren-2-yl]ethenyl]phenyl]-, diethyl ester (9CI) (CA INDEX NAME)

Double bond geometry as shown.



RN 252000-06-9 CAPLUS
CN 9H-Fluoren-2-amine, 9,9-diethyl-7-[(1E)-2-(4-nitrophenyl)ethenyl]-N,N-diphenyl- (9CI) (CA INDEX NAME)

Double bond geometry as shown.



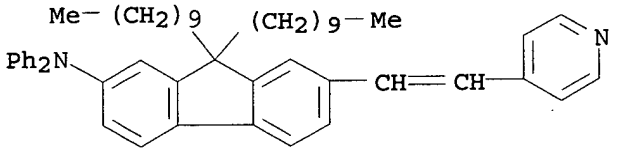
REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 54 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1999:611786 CAPLUS
DOCUMENT NUMBER: 131:329489
TITLE: Molecular Environment Effects on Two-Photon-Absorbing Heterocyclic Chromophores
AUTHOR(S): Baur, Jeffery W.; Alexander, Max D. Jr.; Banach, Michael; Denny, Lisa R.; Reinhardt, Bruce A.; Vaia, Richard A.; Fleitz, Paul A.; Kirkpatrick, Sean M.
CORPORATE SOURCE: Polymer Branch AFRL/MLBP, U.S. Air Force Research Laboratory, Wright-Patterson AFB, OH, 45433, USA
SOURCE: Chemistry of Materials (1999), 11(10), 2899-2906
CODEN: CMATEX; ISSN: 0897-4756
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Over the past several years, organic mols. exhibiting significant 2-photon absorbance and subsequent up-converted fluorescence were of intense interest for a wide variety of applications including data storage, imaging, and optical limiting. The establishment of structure-property relations for some asym. mols. was hindered by the sensitivity of these nonlinear optical properties to the local mol. environment and to the pulse width of the incident radiation. To understand the influence of the local mol. environment on the excited states of these 2-photon-absorbing mols., the linear absorbance, the single-photon-excited luminescence, and the 2-photon-excited luminescence of heterocyclic dyes are examined The stabilization of the longest-lived 1-photon-excited state by the local mol. environment can be described by mean field interactions with solvent mols. as given by the Lippert equation. Because the same stabilization

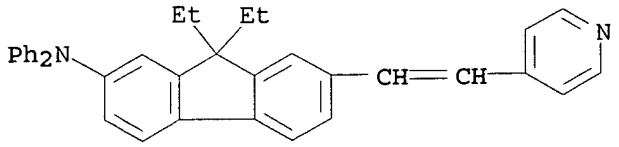
dominates the 2-photon-induced longest-lived excited state, the influence of the local mol. environment on the 2-photon luminescence can be predicted using the Lippert equation and 1-photon expts. These results support models that suggest excited-state absorption is the primary cause of sensitivity of the effective 2-photon cross-section to the pulse-width and the local mol. environment.

IT **191667-13-7**, N,N-Diphenyl-7-[2-(4-pyridinyl)ethenyl]-9,9-didecylfluoren-2-amine **197969-56-5**, N,N-Diphenyl-7-[2-(4-pyridinyl)ethenyl]-9,9-diethylfluoren-2-amine **209603-50-9**, N,N-Diphenyl-7-[2-(4-pyridinyl)ethenyl]-9,9-dihexylfluoren-2-amine
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(mol. environment effects on two-photon-absorbing)

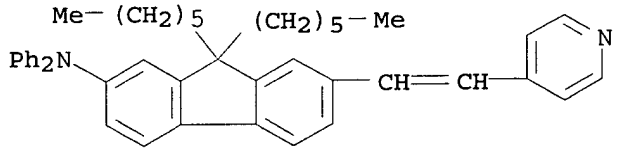
RN 191667-13-7 CAPLUS
CN 9H-Fluoren-2-amine, 9,9-didecyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]- (9CI) (CA INDEX NAME)



RN 197969-56-5 CAPLUS
CN 9H-Fluoren-2-amine, 9,9-diethyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]- (9CI) (CA INDEX NAME)



RN 209603-50-9 CAPLUS
CN 9H-Fluoren-2-amine, 9,9-dihexyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

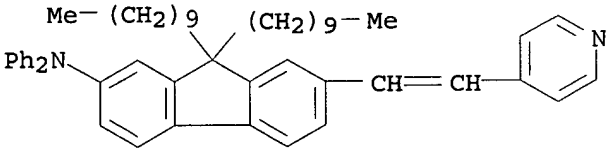
L6 ANSWER 55 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1999:532016 CAPLUS
DOCUMENT NUMBER: 131:206638
TITLE: Measurement of two-photon absorption coefficients employing femtosecond, phase-mismatched DFWM, and nDFWM spectroscopy
AUTHOR(S): Dalton, Larry R.; Larsen, Rulon J.; Strohkendl, Fritz
CORPORATE SOURCE: Loker Hydrocarbon Research Institute, Univ. Southern

California, Los Angeles, CA, USA
SOURCE: MCLC S&T, Section B: Nonlinear Optics (1999), 21(1-4), 245-261
CODEN: MCLOEB; ISSN: 1058-7268
PUBLISHER: Gordon & Breach Science Publishers
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The real and imaginary components of the 3rd order nonlinear optical susceptibility for the fullerenes (C60, C70) and for N,N-diphenyl-7-[2-(4-pyridinyl) ethenyl]-9,9-di-n-decyl-fluoren-2-amine (AF50) were measured over the wavelength range from 0.5-2.0 μm by a variety of techniques (including newly developed techniques of nDFWM and THG/DFWM) based on 4-wave mixing employing 100 fs pulses. Results are compared with related data obtained by 3rd harmonic generation, electroabsorption, and direct 2-photon absorption measurements. The magnitudes of 2-photon absorption for these materials are found to be comparable to that of GaAs (0.020 cm/MW).

IT **191667-13-7**, AF50
RL: PRP (Properties)
(two-photon absorption coeffs. of AF50 employing femtosecond, phase-mismatched DFWM, and nDFWM spectroscopy)

RN 191667-13-7 CAPLUS
CN 9H-Fluoren-2-amine, 9,9-didecyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 56 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1999:107637 CAPLUS
DOCUMENT NUMBER: 130:259118
TITLE: Femtosecond, Frequency-Agile, Phase-Sensitive-Detected, Multi-Wave-Mixing Nonlinear Optical Spectroscopy Applied to π-Electron Photonic Materials
AUTHOR(S): Drenser, K. A.; Larsen, R. J.; Strohkendl, F. P.; Dalton, L. R.
CORPORATE SOURCE: Loker Hydrocarbon Research Institute, University of Southern California, CA, 90089-1662, USA
SOURCE: Journal of Physical Chemistry A (1999), 103(14), 2290-2301
CODEN: JPCAFH; ISSN: 1089-5639
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

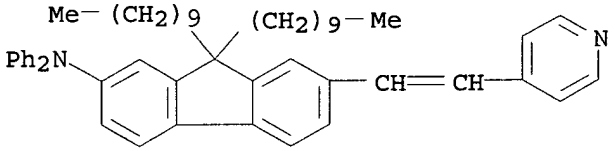
AB Degenerate four-wave mixing (DFWM) spectroscopy is modified to exploit femtosecond pulses, phase-sensitive-detection, frequency (wavelength) agility, two-color (nearly degenerate multi-wave mixing) radiation, and improved signal-to-noise capabilities that can be realized through a combination of new solid state lasers, nonlinear optical components, and novel design concepts. The resulting time-resolved nonlinear optical techniques permit instantaneous optical nonlinearities, such as two-photon

absorption cross sections, to be accurately measured over the spectral range from 450 to 2500 nm (and with significantly greater effort from 225 to 5000 nm). The power of the new techniques is illustrated by their application to the definition of Hg two-photon resonances of C60 and C70 as well as to the characterization of optical nonlinearities in two linear chromophores of putative utility for sensor protection and electrooptic modulation. Explicitly, these measurements provide accurate determination of both transition energies and transition moments (matrix elements connecting the two photon levels). Results are compared to those previously reported in the literature illustrating the advantages and problems associated with particular measurement techniques. All of the mols. studied exhibit two-photon absorption coeffs. comparable to that of GaAs, the most studied putative sensor protection material (based on use of electronic optical nonlinearity). Femtosecond pulse techniques are shown, in all cases, to be necessary to avoid complications arising from excited-state absorption and relaxation phenomena. The importance of phase-sensitive detection in identifying complications from overlapping transitions is illustrated.

IT **191667-13-7**
RL: PRP (Properties)
(femtosecond, frequency-agile, phase-sensitive-detected, multi-wave-mixing nonlinear optical spectroscopy applied to π-electron photonic materials)

RN 191667-13-7 CAPLUS

CN 9H-Fluoren-2-amine, 9,9-didecyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]-(9CI) (CA INDEX NAME)



REFERENCE COUNT: 114 THERE ARE 114 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 57 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1998:805856 CAPLUS

DOCUMENT NUMBER: 130:145769

TITLE: Nonlinear measurements on AF-50

AUTHOR(S): Fleitz, P. A.; Brant, M. C.; Sutherland, R. L.; Strohkendl, F. P.; Larsen, R. J.; Dalton, L. R.

CORPORATE SOURCE: Materials Directorate, Air Force Research Laboratory, AFRL/MLPJ, Wright Patterson Air Force Base, OH, 45433-7702, USA

SOURCE: Proceedings of SPIE-The International Society for Optical Engineering (1998), 3472(Nonlinear Optical Liquids for Power Limiting and Imaging), 91-97
CODEN: PSISDG; ISSN: 0277-786X

PUBLISHER: SPIE-The International Society for Optical Engineering

DOCUMENT TYPE: Journal

LANGUAGE: English

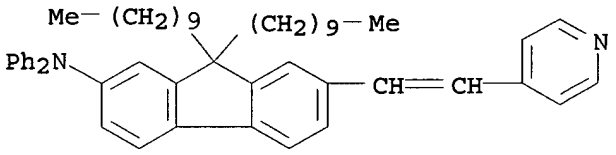
AB The nonlinear optical properties of N,N-diphenyl-7-[2-(4-pyridinyl) ethenyl]-9,9-di-n-decylfluoren-2-amine (AF-50) were investigated. The nonlinear absorption of a saturated solution of this material in Me2CO was investigated with 430 fs pulses at 790 nm. From these results, the 2-photon absorption cross-section was determined to be 25 + 10-50

cm4sec/photon mol. This number is in agreement (within a factor of 2) with theor. calcns. Nonlinear absorption and optical limiting measurements were also made using a Nd:YAG pumped dye laser with 4.3 ns pulses at 694 nm. These results suggest inherent differences in the performance of 2-photon absorbing materials in these 2 different geometries.

IT **191667-13-7**, AF-50
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(nonlinear optical absorption measurement and 2-photon absorption cross-section calcn. of AF-50)

RN 191667-13-7 CAPLUS

CN 9H-Fluoren-2-amine, 9,9-didecyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]-(9CI) (CA INDEX NAME)



REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 58 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1998:805854 CAPLUS

DOCUMENT NUMBER: 130:139023

TITLE: Influence of molecular environment on single photon behavior of heterocyclic NLO chromophores and its implications to two-photon behavior

AUTHOR(S): Baur, Jeffery W.; Alexander, Max D., Jr.; Banach, Michael; Reinhardt, Bruce; Prasad, Paras N.; Yaun, Lixiang; Vaia, Richard A.

CORPORATE SOURCE: Materials and Manufacturing Directorate, Air Force Research Laboratory, Wright-Patterson AFB, OH, 45433, USA

SOURCE: Proceedings of SPIE-The International Society for Optical Engineering (1998), 3472(Nonlinear Optical Liquids for Power Limiting and Imaging), 70-79
CODEN: PSISDG; ISSN: 0277-786X

PUBLISHER: SPIE-The International Society for Optical Engineering

DOCUMENT TYPE: Journal

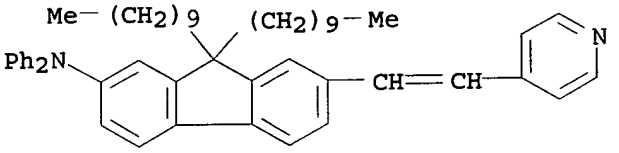
LANGUAGE: English

AB The influence of the solvent environment on linear absorbance and photoluminescence of a series of donor-acceptor heterocyclic chromophores (AF50, AF100, AF60, AF210) was examined The Stoke's shift associated with 1-photon absorbance and photoluminescence was observed to increase with increasing solvent polarity. This behavior is adequately described by the Lippert equation and is related to relaxation of the solvent mols. around an excited mol. Addnl., it was observed that the spectral shape, as well as the solvent dependence, of 2-photon and 1-photon pumped photoluminescence were similar, thus indicating that the longest-lived luminescing excited state is independent of the method of excitation. These results have direct implications to 2-photon applications which rely on up-converted fluorescence. They also yield insight into the structure-property relationships governing their linear and multi-photon behavior including the potential contributions to the effective 2-photon cross-section from excited state absorbance.

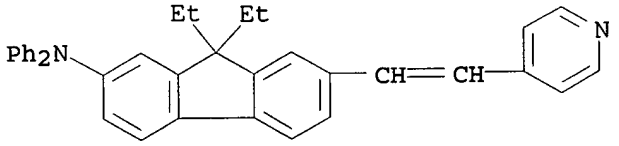
IT **191667-13-7**, AF50 **197969-56-5**, 9H-Fluoren-2-amine,

9,9-diethyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]- **209603-50-9**
, 9H-Fluoren-2-amine, 9,9-dihexyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]-
RL: PEP (Physical, engineering or chemical process); PRP (Properties);
PROC (Process)
(mol. environment effect on single photon absorptivity and luminescence of heterocyclic NLO chromophores and its implications to 2-photon behavior)

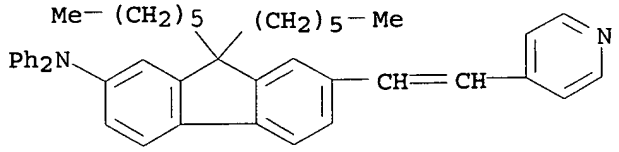
RN 191667-13-7 CAPLUS
CN 9H-Fluoren-2-amine, 9,9-didecyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]-
(9CI) (CA INDEX NAME)



RN 197969-56-5 CAPLUS
CN 9H-Fluoren-2-amine, 9,9-diethyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]-
(9CI) (CA INDEX NAME)



RN 209603-50-9 CAPLUS
CN 9H-Fluoren-2-amine, 9,9-dihexyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]-
(9CI) (CA INDEX NAME)



REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

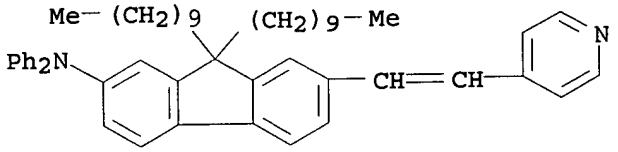
L6 ANSWER 59 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1998:781324 CAPLUS
DOCUMENT NUMBER: 130:145737
TITLE: Probing two-photon excitation dynamics using ultrafast laser pulses
AUTHOR(S): Swiatkiewicz, J.; Prasad, P. N.; Reinhardt, B. A.
CORPORATE SOURCE: Photonics Research Laboratory, Departments of Chemistry and Physics, State University of New York, Buffalo, NY, 14260-3000, USA
SOURCE: Optics Communications (1998), 157(1-6), 135-138
CODEN: OPCOB8; ISSN: 0030-4018
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The authors probe the two-photon excitation dynamics of two new dyes, N,N-diphenyl-7-[2-(4-pirydinyl)ethenyl]-9,9-di-n-decyl-fluoren-2-amine (AF50) and (7-(7-benzothiazol-2-yl-9,9-diethylfluoren-2-yl)-9,9,diethylfluoren-2-yl)diphenylamine (AF250) using femtosecond excitation pulses by Z-scan and time-resolved pump-probe absorption measurements. Irradiance dependence of the induced absorption cross-section is linked to linear absorption of the two-photon excited state. The excited state linear absorption cross-section are 1.0 + 10-17 cm2 for AF250 and 2.7 + 10-17 cm2 for AF250. Relaxation of the two-photon excited state follows a complicated path with three distinct relaxation times. The longest ones, 1.6 ns for the AF50 and 1.9 ns for the AF250, are associated with the resp. lowest singlet life-times: 2.23 ns and 2.15 ns.

IT **191667-13-7**
RL: PRP (Properties)
(probing two-photon excitation dynamics using ultrafast laser pulses)

RN 191667-13-7 CAPLUS

CN 9H-Fluoren-2-amine, 9,9-didecyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]-(9CI) (CA INDEX NAME)



REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 60 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1998:532424 CAPLUS

DOCUMENT NUMBER: 129:308216

TITLE: Two-photon processes: dynamics and applications to photonics and biophotonics

AUTHOR(S): Prasad, P. N.; Joshi, M.; Haridas, E. P.; Swiatkiewicz, J.; He, G. S.; Bhawalkar, J. D.; Kim, K. S.; Reinhardt, B. A.

CORPORATE SOURCE: Photonics Res. Lab., Dep. Chem. and Phys., State Univ. New York, Buffalo, NY, 14260, USA

SOURCE: Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (1998), 39(2), 1114-1115
CODEN: ACPPAY; ISSN: 0032-3934

PUBLISHER: American Chemical Society, Division of Polymer Chemistry

DOCUMENT TYPE: Journal

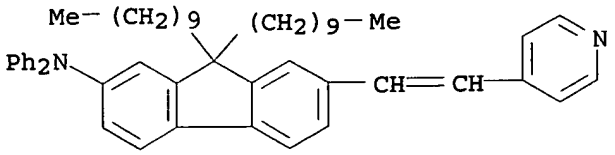
LANGUAGE: English

AB The authors have presented the authors' effort to synthesize mols. and bulk systems with very high two-photon properties. The authors have also carried out pump-probe expts. which reveal the dynamics of multiphoton absorption. Finally the authors demonstrated various applications of two-photon process that are being carried out in the authors' laboratory

IT **191667-13-7**, AF 50
RL: PRP (Properties)
(two-photon processes for dye mols. and their applications to photonics and biophotonics)

RN 191667-13-7 CAPLUS

CN 9H-Fluoren-2-amine, 9,9-didecyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]-(9CI) (CA INDEX NAME)

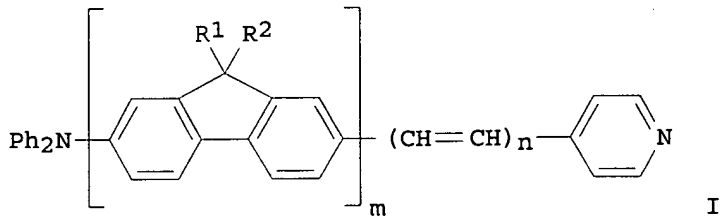


REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 61 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1998:427808 CAPLUS
DOCUMENT NUMBER: 129:96587
TITLE: Asymmetric dyes with large two-photon absorption cross sections
INVENTOR(S): Reinhardt, Bruce A.; Bhatt, Jayprakash C.; Brott, Lawrence L.; Clarson, Stephen J.
PATENT ASSIGNEE(S): United States Dept. of the Air Force, USA
SOURCE: U.S., 5 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5770737	A	19980623	US 1997-933067	19970918
PRIORITY APPLN. INFO.:			US 1997-933067	19970918

OTHER SOURCE(S): MARPAT 129:96587
GI

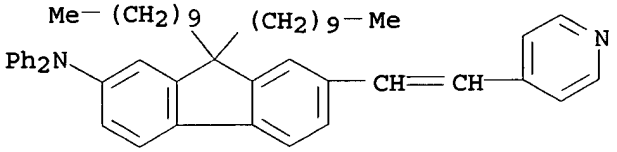


I

AB A two-photon absorbing chromophore, useful in laser-scanning confocal fluorescence microscopy, has the structure I [R1, R2 = C8-12 alkyl; m = 1, 2; n = 0, 1]. Thus, fluorene was treated in 2 stages with BuLi followed by Me(CH2)9Br and the product was brominated in CH2Cl2 in the presence of I2 to give 2,7-dibromo-9,9-didecylfluorene (II). II was condensed first with Ph2NLi in the presence of (2-MeC6H4)3P and a Pd complex and then with 4-vinylpyridine in the presence of (2-MeC6H4)3P, Et3N, and Pd(OAc)2 to give I (R1 = R2 = decyl, m = n = 1), a 0.0450M solution of which in THF showed a 2-photon absorption cross section of 78 + 10-20 cm4/GW when laser-irradiated at 800 nm and pulse duration 8-10 ns.

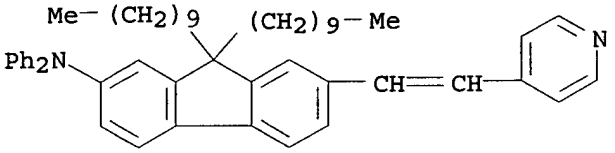
IT **191667-13-7P**
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(asym. dyes with large two-photon absorption cross sections)
RN 191667-13-7 CAPLUS

CN 9H-Fluoren-2-amine, 9,9-didecyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]-
(9CI) (CA INDEX NAME)

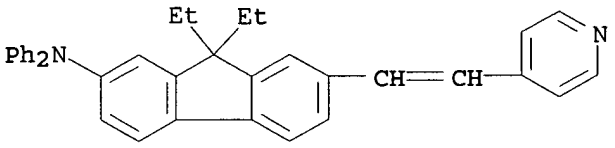


REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

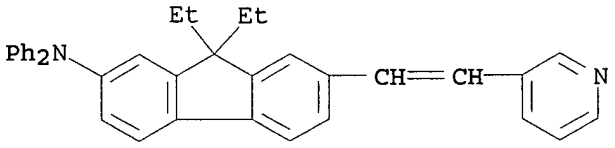
L6 ANSWER 62 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1998:411176 CAPLUS
DOCUMENT NUMBER: 129:96579
TITLE: Highly active two-photon dyes: design, synthesis, and characterization toward application
AUTHOR(S): Reinhardt, Bruce A.; Brott, Lawrence L.; Clarson, Stephen J.; Dillard, Ann G.; Bhatt, Jayprakash C.; Kannan, Ramamurthi; Yuan, Lixiang; He, Guang S.; Prasad, Paras N.
CORPORATE SOURCE: Polymer Branch WL/MLBP Materials Directorate, U. S. Air Force Research Laboratory, Wright-Patterson AFB, OH, 45433-7750, USA
SOURCE: Chemistry of Materials (1998), 10(7), 1863-1874
CODEN: CMATEX; ISSN: 0897-4756
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A series of compds. with systematically varied mol. structures which exhibit very large effective two-photon cross sections has been synthesized and characterized in solution using a nonlinear transmission technique. The general structure of these compds. can be categorized into two basic structural families: acceptor/donor/donor/acceptor and donor/bridge/acceptor. This study attempts to determine certain mol. structure/effective two-photon absorption relationships by careful characterization and as a function of systematically varied changes in the organic structure of the dye mols. Such information can be useful in the design of more efficient two-photon dyes for imaging and power-limiting applications. The results of the study indicate that with the incorporation of certain combinations of structural elements, dyes can be synthesized which have greatly increased effective cross sections as high as 152.5 + 10-48 cm4 s/photon mol. in benzene solution at 800 nm using 8-ns pulses. This value is orders of magnitude higher than com. available organic dyes measured at the same wavelength. Although the process is thought to involve a combination of two-photon absorption and excited state absorption phenomena, the information gathered from these new families of dyes has provided an important first step in producing improved materials for use in many different two-photon technol. application.
IT **191667-13-7P 197969-56-5P 209603-48-5P**
209603-50-9P 209603-53-2P 209603-56-5P
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(preparation of highly active 2-photon dyes)
RN 191667-13-7 CAPLUS
CN 9H-Fluoren-2-amine, 9,9-didecyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]-
(9CI) (CA INDEX NAME)



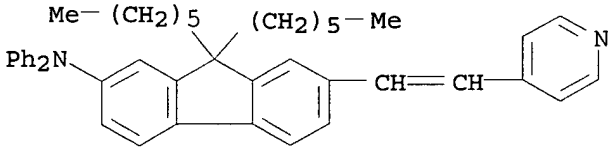
RN 197969-56-5 CAPLUS
CN 9H-Fluoren-2-amine, 9,9-diethyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]-(9CI) (CA INDEX NAME)



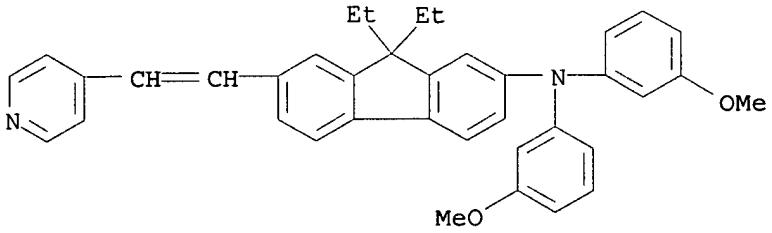
RN 209603-48-5 CAPLUS
CN 9H-Fluoren-2-amine, 9,9-diethyl-N,N-diphenyl-7-[2-(3-pyridinyl)ethenyl]-(9CI) (CA INDEX NAME)



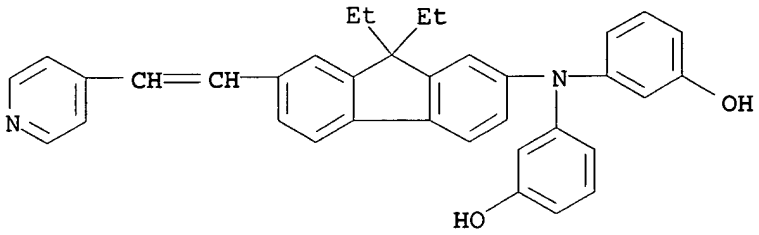
RN 209603-50-9 CAPLUS
CN 9H-Fluoren-2-amine, 9,9-dihexyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]-(9CI) (CA INDEX NAME)



RN 209603-53-2 CAPLUS
CN 9H-Fluoren-2-amine, 9,9-diethyl-N,N-bis(3-methoxyphenyl)-7-[2-(4-pyridinyl)ethenyl]- (9CI) (CA INDEX NAME)

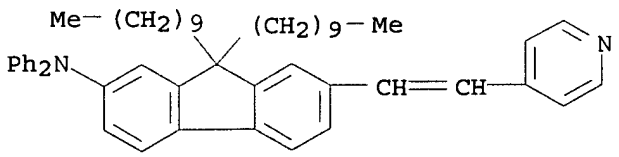


RN 209603-56-5 CAPLUS
CN Phenol, 3,3'-[[9,9-diethyl-7-[2-(4-pyridinyl)ethenyl]-9H-fluoren-2-yl]imino]bis- (9CI) (CA INDEX NAME)



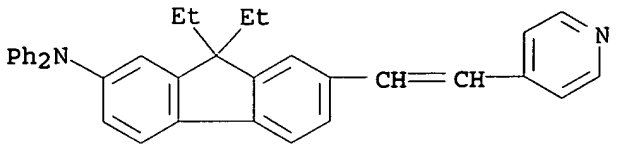
REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 63 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1998:33766 CAPLUS
DOCUMENT NUMBER: 128:153818
TITLE: The design and synthesis of new organic molecules with large two-photon absorption cross-sections for optical limiting applications
AUTHOR(S): Reinhardt, B. A.; Brott L. L.; Clarson, S. J.; Kannan, R.; Dillard, A. G.
CORPORATE SOURCE: U.S. Air Force Wright Laboratory, Polymer Branch, WL/MLBP Materials Directorate, Wright-Patterson AFB, OH, 45433-7750, USA
SOURCE: Materials Research Society Symposium Proceedings (1997), 479(Materials for Optical Limiting II), 3-8
CODEN: MRSPDH; ISSN: 0272-9172
PUBLISHER: Materials Research Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The mol. structure/nonlinear optical (NLO) property relationship is explored with seven recently synthesized chromophores. Two sym. compds. were made using electron withdrawing groups separated by an electron rich core while five asym. mols. were developed using electron donating and withdrawing groups coupled by a π electron bridging group. Pendant chains were added to some of the chromophores to improve processibility. Their syntheses are described and their optical limiting properties discussed.
IT **191667-13-7P 197969-56-5P**
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(design and preparation of organic mols. with large two-photon absorption cross-sections for optical limiting applications)
RN 191667-13-7 CAPLUS
CN 9H-Fluoren-2-amine, 9,9-didecyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]- (9CI) (CA INDEX NAME)



RN 197969-56-5 CAPLUS

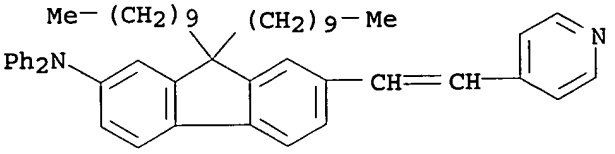
CN 9H-Fluoren-2-amine, 9,9-diethyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]-
(9CI) (CA INDEX NAME)



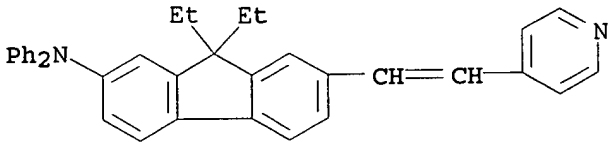
REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 64 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1997:702997 CAPLUS
DOCUMENT NUMBER: 127:332778
TITLE: Optical power limiting in solution via two-photon absorption: new aromatic heterocyclic dyes with greatly improved performance
AUTHOR(S): Reinhardt, Bruce A.; Brott, Lawrence L.; Clarson, Stephen J.; Kannan, Ramamurthi; Dillard, Ann G.
CORPORATE SOURCE: Polymer Branch, WL/MLBP Materials Directorate, U. S. Air Force Research Laboratory, Wright-Patterson AFB, OH, 45433-7750, USA
SOURCE: Proceedings of SPIE-The International Society for Optical Engineering (1997), 3146(Nonlinear Optical Liquids and Power Limiters), 2-11
CODEN: PSISDG; ISSN: 0277-786X
PUBLISHER: SPIE-The International Society for Optical Engineering
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Organic compds. which exhibit optical power limiting exclusively via a two-photon absorption mechanism have shown only little promise for providing the limiting activity necessary for the practical protection of eyes and sensors. Unfortunately, there have been few systematic studies of the mol. structure/two-photon absorption property relationships for orgs. documented in the literature. In order to enable the design and synthesis of new mols. with much larger two-photon absorption cross-sections and improved limiting properties, the synthetic chemist must have access to well defined structure/property data. In an attempt to fill this void, work has centered on the design and synthesis of several new families of aromatic heterocyclic chromophores with systematic variations in their mol. structures. Careful characterization of these new materials in solution has produced some well-defined structure/two-photon property relationships at 800 nm. The design and synthesis of these materials are discussed with special emphasis of how the flexibility of the synthetic scheme employed enables the incorporation of these chromophores into a wide variety of materials forms. The characterization of the two-photon properties of these materials and the relationship of these results to their optical limiting behavior in solution will also be reviewed.
IT **191667-13-7P 197969-56-5P**
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(preparation of aromatic heterocyclic dyes with optical power limiting in solution via two-photon absorption)
RN 191667-13-7 CAPLUS
CN 9H-Fluoren-2-amine, 9,9-didecyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]-

(9CI) (CA INDEX NAME)



RN 197969-56-5 CAPLUS
CN 9H-Fluoren-2-amine, 9,9-diethyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]-
(9CI) (CA INDEX NAME)



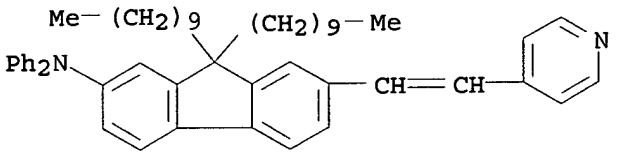
REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 65 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1997:311012 CAPLUS
DOCUMENT NUMBER: 127:87642
TITLE: Nonlinear optical properties of a new chromophore
AUTHOR(S): He, Guang S.; Yuan, Lixiang; Cheng, Ning; Bhawalkar, Jayant D.; Prasad, Paras N.; Brott, Lawrence L.; Clarson, Stephen J.; Reinhardt, Bruce A.
CORPORATE SOURCE: Photonics Research Laboratory, Department Chemistry, State University New York, Buffalo, NY, 14260-3000, USA
SOURCE: Journal of the Optical Society of America B: Optical Physics (1997), 14(5), 1079-1087
CODEN: JOBPDE; ISSN: 0740-3224
PUBLISHER: Optical Society of America
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Strong two-photon-absorption (TPA) based nonlinear optical properties of a new chromophore, N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]-9,9-di-n-decyl-fluoren-2-amine (AF-50) was exptl. studied. Under excitation with 10-Hz, .apprx.8-ns, and .apprx.800-nm laser pulses, the TPA cross section and the TPA-induced frequency-upconverted emission spectra are measured for AF-50 solns. in various solvents. The most attractive feature of this chromophore is its remarkably high value of the mol. TPA cross section (.apprx.78 + 10-20 cm2/GW in benzene solution). Based on this feature, superior optical power limiting and stabilization performance was demonstrated in a 1-cm-long AF-50 solution sample with concentration of d0 = 0.045 M/L. The nonlinear transmission of the measured sample decreased from .apprx.0.93 to .apprx.0.3 when the input-beam intensity increased from .apprx.10 MW/cm2; the relative intensity fluctuation of the output laser pulses was reduced to 1/3 of that of the input laser beam.

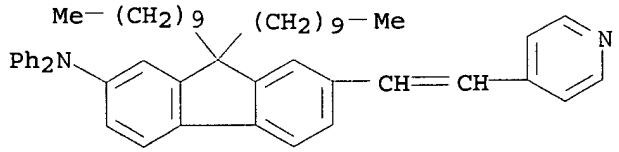
IT **191667-13-7**
RL: PRP (Properties)
(nonlinear and linear optical properties of new chromophore)
RN 191667-13-7 CAPLUS

CN 9H-Fluoren-2-amine, 9,9-didecyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]-
(9CI) (CA INDEX NAME)



REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 66 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1997:213235 CAPLUS
DOCUMENT NUMBER: 126:349333
TITLE: Measurement of two-photon absorption cross sections of dye molecules doped in thin films of polymethylmethacrylate
AUTHOR(S): Mukherjee, N.; Mukherjee, A.; Reinhardt, B. A.
CORPORATE SOURCE: Laser-Matter Interaction Labs Incorporated, Albuquerque, NM, 87110, USA
SOURCE: Applied Physics Letters (1997), 70(12), 1524-1526
CODEN: APPLAB; ISSN: 0003-6951
PUBLISHER: American Institute of Physics
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Two-photon absorption cross sections of 2 dye mols., doped in thin films of polymethylmethacrylate, are measured by comparing fluorescence intensities induced by single- and 2-photon excitations. Ratio of the single- and 2-photon absorption cross sections is related to the ratio of the single- and 2-photon pumped fluorescence intensities. Using this sensitive and background-free detection technique, dispersion of the nonlinearity is measured over a wavelength range of 700-800 nm.
IT **191667-13-7**, AF 50
RL: PRP (Properties)
(measurement of two-photon absorption cross sections of dye mols. doped in thin films of polymethylmethacrylate)
RN 191667-13-7 CAPLUS
CN 9H-Fluoren-2-amine, 9,9-didecyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]-
(9CI) (CA INDEX NAME)

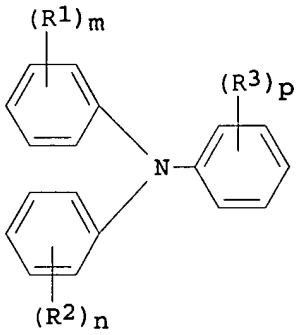


L6 ANSWER 67 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1995:528442 CAPLUS
DOCUMENT NUMBER: 122:277533
TITLE: Organic electroluminescence device containing carbonyl tryarylamine compounds
INVENTOR(S): Kikuchi, Norihiro; Nakano, Takashi
PATENT ASSIGNEE(S): Canon Kk, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 19 pp.

CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
JP 06256759	A2	19940913	JP 1992-134527		19920428
JP 2939052	B2	19990825			
US 5378519	A	19950103	US 1993-52460		19930426
PRIORITY APPLN. INFO.:			JP 1992-134526	A	19920428
			JP 1992-134527	A	19920428

OTHER SOURCE(S): MARPAT 122:277533
GI

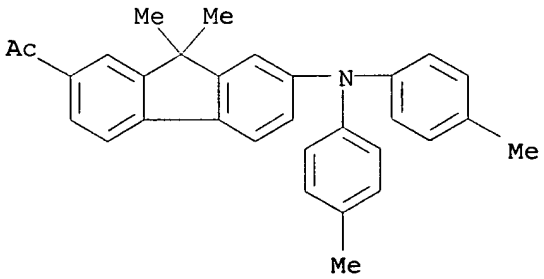


I

AB An electroluminescence device comprising a cathode, an anode, and organic layer(s) formed between the electrodes, is characterized in that the one of the organic layers comprises a CO-containing amine derivative I (R1, R2, R3 = alkyl, aralkyl, aromatic,heterocyclyc, alkoxy, aryloxy, halo, nitro, cyano, hydroxyl, and amino; m, n, p, = 0-5).

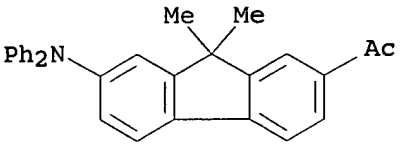
IT **162815-83-0 162815-86-3**
RL: DEV (Device component use); USES (Uses)
(organic electroluminescence device containing carbonyl tryarylamine compds.)

RN 162815-83-0 CAPLUS
CN Ethanone, 1-[7-[bis(4-methylphenyl)amino]-9,9-dimethyl-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)



RN 162815-86-3 CAPLUS

CN Ethanone, 1-[7-(diphenylamino)-9,9-dimethyl-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)



L6 ANSWER 68 OF 68 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1987:565420 CAPLUS
DOCUMENT NUMBER: 107:165420
TITLE: Electrophotographic charge-generating tetrakisazo pigments
INVENTOR(S): Matsumoto, Masakazu; Umehara, Masashige; Takiguchi, Takao; Yamashita, Masataka; Ishikawa, Shozo
PATENT ASSIGNEE(S): Canon K. K., Japan
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FAMILY ACC. NUM. COUNT: 6
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JP 62018565	A2	19870127	JP 1985-157699		19850717
JP 04035750	B4	19920612			
US 4666810	A	19870519	US 1986-852243		19860415
PRIORITY APPLN. INFO.:			JP 1985-80248	A	19850417
			JP 1985-157699	A	19850717
			JP 1985-157700	A	19850717
			JP 1985-159401	A	19850718
			JP 1985-159402	A	19850718
			JP 1985-159403	A	19850718

AB The charge-generating tetrakisazo pigments have the formula (AN:NZ3)(AN:NZ4)NZ1CB1:CB2Z2N(Z5N:NA)(Z6N:NA) (I; A = coupler residue with a phenolic OH group; Z1-Z6 = arylene, condensed polycyclene, heterocyclene; B1, B2 = H, halo, CF3, CN, etc.). An electrophotog. charge-generating layer may contain a tetrakisazo pigment of the formula I (A = coupler residue from 3-hydroxy-2-naphthoic acid anilide; Z1-Z6 = 1,4-phenylene; B1, B2 = H) and a poly(vinyl butyral) binder. It provides electrophotog. photoreceptors with improved sensitivity and voltage stability for repeated use.

IT **110573-50-7 110573-52-9 110573-72-3**
RL: USES (Uses)
(electrophotog. charge-generating pigments)

RN 110573-50-7 CAPLUS
CN 2-Naphthalenecarboxamide, 4,4',4'',4'''-[1,2-ethenediylbis[(9-oxo-9H-fluorene-7,2-diyl)nitrilobis(4,1-phenyleneazo)]]tetrakis[3-hydroxy-N-phenyl- (9CI) (CA INDEX NAME)

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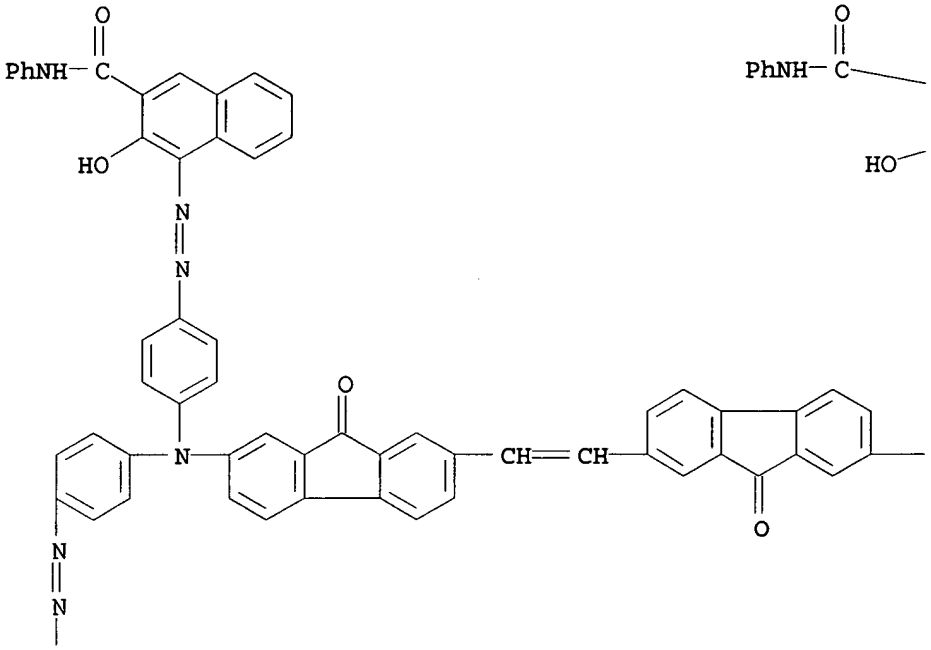

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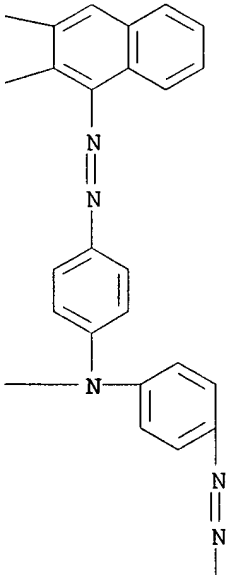

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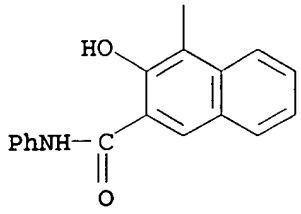

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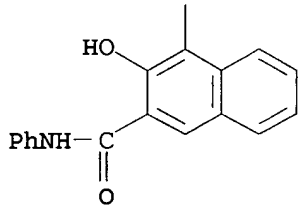

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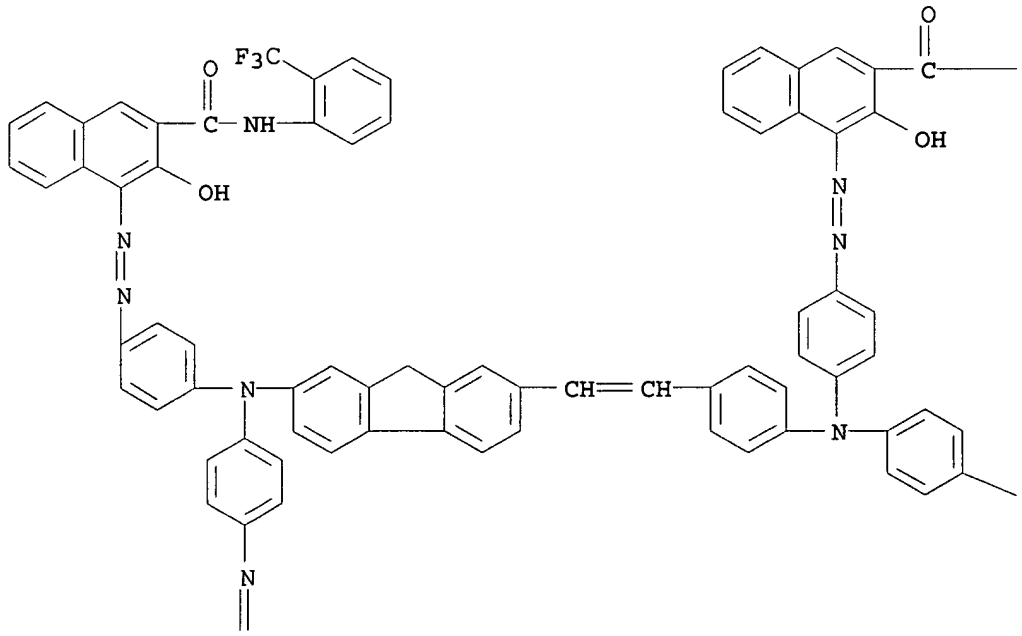

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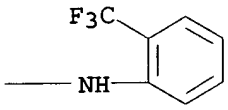

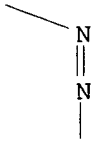

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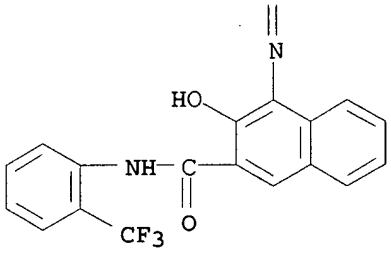

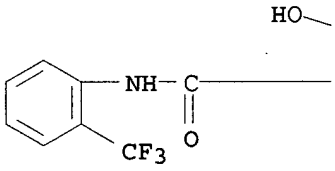

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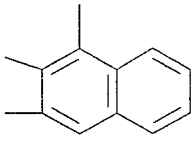

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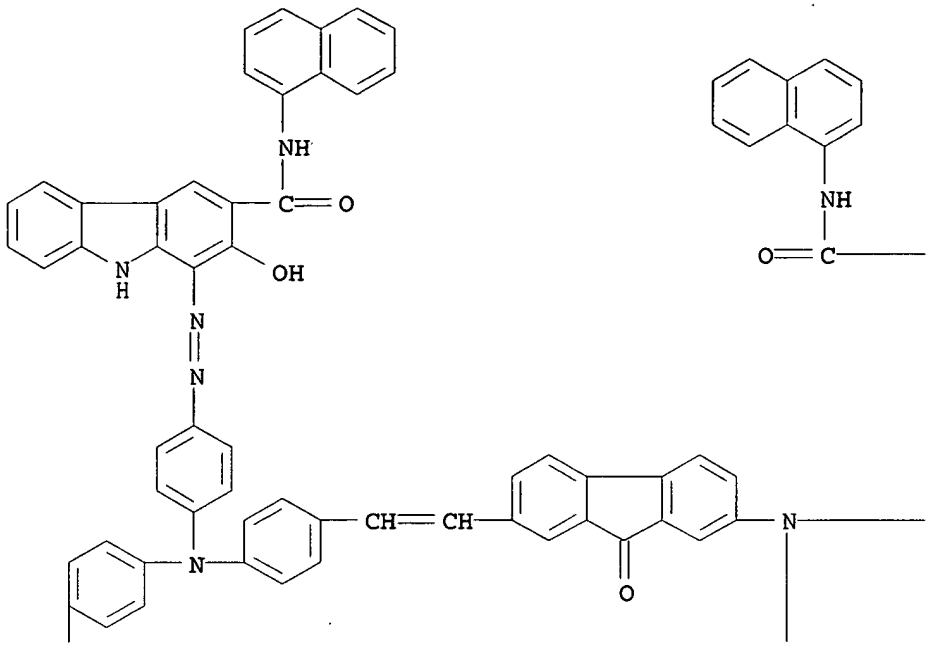

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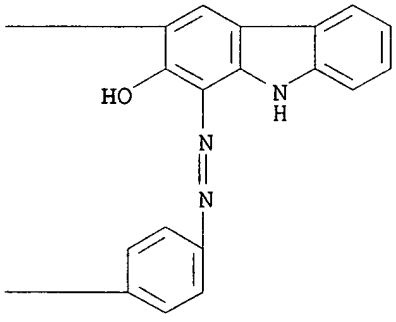

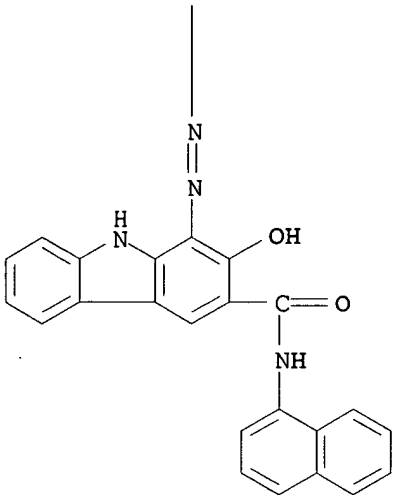

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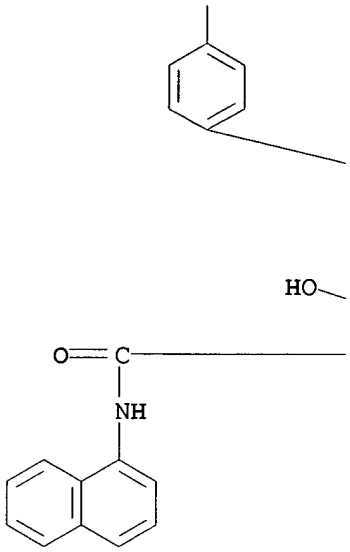

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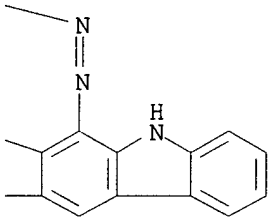

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COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	349.81	518.78

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	-51.00	-51.00

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